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The Medical Department of the Army in War*

By Major Roger G. Prentiss, Jr.
Medical Corps, U. S. Army
Washington, D. C.

■ You are well aware of the heavy demand which the present war will place upon the medical profession. This demand will affect each one of you. Your mode of life will inevitably change in some respects. This is total war, not a war of professional armies. The time for "business as usual" is past for our profession just as it is past for industry.

Sacrifice of personal interest for the nation's benefit is not a new experience for the doctor. He has played an important role in the defense of his country throughout the history of the United States. Many of our military leaders in the Revolution were drawn from the medical profession. Since those days the doctor's military activities have been confined increasingly to medico-military functions. Each emergency has found him and his profession eagerly alert to make its contribution to the country's defense. Each emergency has asked greater sacrifice because of the increased proportion of population directly involved in conflict. Now, with the advent of total war, we find every member of the medical profession, wherever he may be, subject to call in some capacity. The demand for medical personnel is not confined to the Federal services but must include the care of the entire civil population. There is no pool of excess medical personnel in the nation and none can be developed in a short time. Increasing the size of the

Army and Navy will require more and more physicians but there is a limit beyond which we cannot go. The civil population must continue to receive adequate medical care. Industrial medicine demands increased attention and Public Health cannot be slighted.

The medical problem is thus of nationwide extent. No one agency can be considered to the exclusion of all others. Physicians must be judiciously apportioned. I shall attempt to tell you something of the needs and problems of the Medical Department of the Army.

The United States has not been a military nation. Our regular Army prior to the present emergency was relatively tiny. It was seventeenth in size among the nations of the world. Let us consider the statistics prior to the period of expansion. On July 1, 1939, our Army numbered approximately 174,000 enlisted men and 13,000 officers. Only 1,210 of those officers were members of the Medical Corps, that is, were doctors of medicine. At the time war was declared on December 8, 1941, the Army had already been expanded nearly tenfold so that it included approximately 112,000 officers and 1,500,000 enlisted men. This expansion has continued. At the present time the Medical Department alone includes the following approximate totals of officers:

Medical Corps.....	12,000
Dental Corps.....	3,300
Veterinary Corps.....	750
Sanitary Corps.....	250
Medical Administrative Corps.....	1,500
Army Nurse Corps.....	8,000

Large as those figures may seem they represent only a beginning. It is estimated that the minimum requirements in 1942 for medical officers alone will be approximately 28,000. This includes the 12,000 now on duty. In addition

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there will be required over 6,000 dental officers and approximately 18,000 nurses.

The need for personnel in 1943 will be even greater. It is impossible to state the exact number of medical officers who will be required because this is based on a number of factors. In a general way the allowance of medical officers is roughly 6.5 for each 1,000 of military population. This ratio, however, may vary widely, dependent on the nature and location of military operations. A rough comparison of our coming needs may be arrived at by recalling that in the First World War we had 31,000 medical officers in service with a maximum strength of the Army of a little over 3,500,000.

The allowance of physicians in the Army may seem excessive when one considers our ratio of 6.5 per 1,000 in comparison with 1.5 per 1,000 in civil life. Why is this high ratio necessary? It is because the responsibilities and activities of the Medical Department extend far beyond the mere treatment of sick and wounded.

Hospitalization alone is a mammoth project. Army hospitals in this country now provide a total bed capacity of about 108,000. These hospitals are of two principal classes. At each military station there is a hospital known as a Station Hospital. This hospital provides bed capacity of four beds for each 100 of the military population of that station. These station hospitals may vary in size from 25 beds to as many as 3,000 beds. There are at present over two hundred Station Hospitals. In addition there are fifteen General Hospitals located at convenient points throughout the country. These General Hospitals vary in size from 500 beds to 2,000 beds. Their purpose is to furnish care for patients requiring very lengthy or highly specialized treatment.

These Station Hospitals and General Hospitals do not differ materially from civil hospitals. However, the types of patients do differ greatly. Military personnel is a highly select group of young men in good physical condition. Therefore, the cases prior to combat will be largely of an acute rather than a chronic nature, and inflammatory rather than degenerative. Furthermore, many of the patients will have very mild illnesses such as would be treated in their homes in civil life. In the Army a sick soldier cannot be left in his quarters. This fact accounts in

considerable part for the large bed capacity needed.

These hospitals are considered normally to be hospitals of the Zone of the Interior. This term may not be familiar to all of you. A military force in time of war is disposed in three parts—the Combat Zone, the Communications Zone and the Zone of the Interior. The Combat Zone and the Communications Zone combined, constitute a Theater of Operations. The Zone of the Interior, usually the home territory, furnishes the Theater of Operations the munitions, supplies and men required, and assumes the care of the noneffectives returned to it. It is not always easy to determine where one area stops and another begins. In the First World War the division was very simple: France was the Theater of Operations, the United States was the Zone of the Interior. Now there may be many Theaters of Operations, in fact some may be present in the continental United States.

Hospitalization in a Theater of Operations is quite different from that in the Zone of the Interior. General Hospitals and Station Hospitals will be found in the Communications Zone but they will be more primitive than those of the Zone of the Interior. They also have a much more formidable task since they must care for actual battle casualties returned from the Combat Zone. Many of these hospitals will be staffed by Affiliated Medical Units. Their number may become very large since in a Theater of Operations hospital bed capacity must be provided for from 12 to 15 per cent of the military strength in that theater.

Still different medical units and hospitals are found in the Combat Zone. These include Medical Detachments, Medical Battalions, Surgical Hospitals, Evacuation Hospitals, Medical Depots and Medical Laboratories. All of these must be staffed and operated by Medical Department personnel.

All of the medical installations in a Combat Zone are mobile in nature. They must be able to move rapidly and on short notice. Their function is to furnish first aid and emergency treatment. Definitive treatment is delayed until arrival of casualties at a General Hospital. Let us briefly trace a battle casualty through the various steps in his evacuation. When wounded he receives first-aid treatment in the Battalion Aid Station located very close to the front line.

This aid station is operated by medical personnel attached to his own regiment. He is next taken over by the medical battalion which is part of his division. Litter bearers carry him from the Battalion Aid Station to the Collecting Station, a distance of from one half to one mile. Treatment here is still merely of a first-aid nature. However, it does include the institution of sulfonamide therapy if this has not already been done at the Battalion Aid Station. Some shock treatment may be given, possibly including the administration of plasma.

The casualty is next transported by ambulance to the Clearing Station which is also within the divisional area and operated by the medical battalion. This station is equipped to give more elaborate shock treatment but no actual surgery is performed. Patients are prepared here for evacuation to the rear. As soon as possible they are transported by ambulance to an Evacuation Hospital. Some casualties would be nontransportable. These may include head, chest and abdominal wounds. These patients might be diverted to a surgical hospital located in the vicinity of the Clearing Station. The functions of the Evacuation Hospital and Surgical Hospital are similar. Both give emergency surgical treatment. As soon as possible patients from them are transported to General Hospitals in the Communications Zone where definite treatment is given.

Many persons have tended to put emphasis on the definitive surgical treatment of battle casualties. If this was the only problem in the medical service of the Army our cares would be much lighter. Actually it is but a small part of the picture. The fate of the wounded soldier depends on skilled care from the moment he first receives his wound. Skilled first-aid care and proper handling are even more vital than surgery at a later date. It is here that lives may be saved. Young medical officers assigned to medical detachments and medical battalions must carry the burden of field medical service. Their training covers that of a new profession. They must be versatile in the handling of all manner of medical and surgical emergencies. They must possess leadership since they will control the activities of the Medical Department enlisted men. They must be versed in sanitation since the health of their organizations is dependent largely on their efforts. The success or failure of field

medical service is dependent on these young officers.

No young physician is prepared to enter the military service from civil life and deal adequately with the problems of a medical officer in the field. He must receive long and arduous training with his organization so that when the moment of combat arrives he will be prepared to play his part in the military operation. He can play that part only by being completely familiar with the activities of the other members of the military team. During the period of training much of his time will be devoted to medico-military rather than strictly professional subjects. He must train his enlisted men so that they will function efficiently in combat. When that time comes work will tax to the utmost his stamina and good judgment. Intelligent supervision of the first-aid treatment and handling of battle casualties during evacuation clearly demands an alert and highly trained medical officer. He may minimize deaths from shock and hemorrhage, prevent many disabling after results from wounds, and deliver patients to Surgical and Evacuation Hospitals in the best operative condition. No layman can possibly measure up to these requirements.

The duties of medical officers in Surgical Hospitals, Evacuation Hospitals, and General Hospitals will not differ so markedly from those in civil life. However, many problems will be new. The cases will be of a traumatic nature, often very extensive. Speed will be vital. The environment oftentimes will be rather primitive. Equipment will be adequate, but standardized and stripped to minimum essentials.

It is apparent that all physicians entering the military service must receive some training. The nature and extent of the training will vary somewhat with the probable assignment of the individual officer. Officers who are to be assigned to field tactical units are given a brief course of instruction in medico-military subjects at the Medical Field Service School. In addition they will receive continued instruction by the senior medical officers of their organizations. This instruction must cover not only military matters but also the fundamentals of first aid and emergency surgery.

Officers who are to be assigned to hospitals will receive training at these hospitals. They will also in many instances receive brief courses of instruction in various specialties, among them

being orthopedic surgery, neurosurgery, thoracic surgery, plastic and maxillofacial surgery, and general surgery. The purpose of these courses is mainly to present the latest accepted principles of emergency procedures. These courses will be conducted at various civil institutions throughout the country.

Courses in tropical medicine, clinical laboratory and x-ray are conducted at the Army Medical School in Washington, D. C.

I have mentioned only a few of the phases of the training program essential to the expansion of the Medical Department. There are many other subjects in which medical officers must be trained. The responsibilities of officers in the Medical Corps are much broader than those of any physician in civil life. They encompass field medical service, the operation of many types of hospitals, ambulance service, medical supply, preventive medicine and the training and command of a huge number of Medical Department enlisted men. This enlisted personnel amounts to about 7.5 per cent of the strength of the entire Army; for 1942 about 270,000 enlisted men. Some of the duties of individual medical officers may seem somewhat foreign to their strictly professional training. All of these assignments are of a nature requiring medical background and viewpoint.

Before closing I wish to mention briefly one other activity of the Medical Department, that of medical supply. The Medical Department is charged with procuring and supplying all items of medical equipment for the Army. Over \$50,000,000 has been spent for this purpose in the past year. The problem, however, is not merely a matter of purchasing large quantities of drugs and instruments. It includes the selection and procurement of supplies not only for fixed hospitals, but for field medical service. Special types of equipment are necessary for this service. Planning for procurement of medical supplies must be very foresighted since it must take advantage of advances in therapy and must also be realistic. World conditions have interrupted the normal flow of certain critical materials so that substitutions have been necessary in some instances. As examples, light steel has been substituted for aluminum in the sidebars of litters and substitutes for tin have been required in the packaging of some supplies. It can, however, be stated with confidence that drugs and equipment will

be adequate for the efficient treatment of all military personnel.

I have tried to present a portion of the enormous task undertaken by the Medical Department of the Army. This task can only be accomplished by the dislocation of many individuals from their secure and comfortable positions in civil life. This will require considerable sacrifice in many instances. The record of the medical profession in national emergencies has been admirable. It has continued so in the present one. Time does not permit me to mention the enumerable ways in which the civilian medical profession has cooperated with the Medical Department of the Army, both individually and as organizations. This cooperation has been deeply appreciated. I feel confident that it will continue. We all have one common professional goal—efficient medical service whether in civil life or in the Army. The Medical Department is charged with the heavy responsibility of caring for our soldiers wherever they may be sent. I have no fear but that the medical profession will contribute willingly to that end. I hope that you have equal confidence that the Medical Department will utilize its personnel to the best advantage and will not waste the training of its members. Every American soldier must and shall receive efficient medical and surgical care.

MSMS

The attack on the voluntary system of medical care, aside from actual war needs, will very likely not proceed directly to a regimentation of civilian physicians but rather along the line of controlling hospitals and hospitalization to such a large extent that physicians must, in their hospital practice, be subservient to such controls. It is not a question of whether what will then be furnished in hospitalization and medical care will be as good as what is now provided. I would agree with you that it would be definitely and vastly inferior but the public is in a frame of mind to be sold the idea of government control and this will have political backing.—HERBERT P. RAMSEY, M.D., quoted in *Medical Annals of the District of Columbia*, March, 1942.

"Whatever his views on the ethics of contraception, the doctor needs to be well informed about its practical aspects, for sooner or later he is sure to be called on to give advice on them."—*The Lancet*, London; quoted by the *New Generation*.

JOUR. M.S.M.S.

Tuberculosis—A Foe Still Able to Fight*

By Charles Everard Lyght, M.D.†
Northfield, Minnesota

CHARLES E. LYGHT, M.D.



M.D., C.M., Queen's University Faculty of Medicine (Canada), 1926. Department of Student Health, University of Wisconsin, Madison, 1927-36; Director, 1932-36; Associate Professor of Clinical Medicine, University of Wisconsin Medical School. Professor of Health and Physical Education, and Director of the Student Health Service, Carleton College, Northfield, Minnesota, 1936 to date. Staff of Northfield City Hospital and Allen Memorial Infirmary. Fellow of the American College of Physicians and of the American College of Chest Physicians. Member of several professional and scientific societies, including the Minnesota Trudeau Medical Society and Sigma Xi. Past President of the North Central Section, American Student Health Association, and, since 1936, Chairman of the Tuberculosis Committee, A.S.H.A. Publications, in addition to a weekly column: "Lyght on Health," have been mainly in the fields of clinical medicine, tuberculosis control and student health.

■ TUBERCULOSIS is among the most ancient enemies of man. Perhaps we tend to underrate an opponent that is old but far from decrepit. For tuberculosis has lost none of its cunning in stalking new victims, and, for the sufferer, it is as stark and strange a catastrophe as any that may nowadays overtake him. Outmoded methods of diagnosis and treatment of tuberculosis are no more rational or excusable in this modern age than any other horse-and-buggy response to a contemporary medical emergency.

Proudly may the medical profession point to the seventh place among American death causes now occupied by the White Plague of our fathers, recalling that only forty years ago tuberculosis was the undisputed leader. This progress is no accident. It comes from unremitting effort by doctors, social workers, tuberculosis agencies and enlightened laymen. But, to be honest, we must admit that much forthright education remains imperative if we would witness every physician employing only the best diagnostic weapons, every citizen conditioned to cooperate with him. At the risk of discussing techniques understood and used by the majority, I propose to summarize briefly those means toward early diagnosis that some still seem to ignore or use too seldom.

*Address delivered before the Seventy-sixth Annual Meeting of the Michigan State Medical Society, Grand Rapids, September 18, 1941.

†Director, Carleton College Health Service; Chairman, Tuberculosis Committee, American Student Health Association.

Diagnose Presymptomatic Tuberculosis!

During my own university days in the early 1920's the *symptoms* of pulmonary tuberculosis were still being stressed. Now, a mere school child may read in his hygiene manual that by the time cough, loss of weight, chest pain, blood spitting, night sweats or profound fatigue develop the case has passed into an advanced, toxic stage. We all realize how vastly diminished are the chances of recovery of such a tardily discovered victim, or, at best, the probability of full restoration to health and usefulness. Communicable as any other germ-spread malady, his tuberculosis may have perpetuated itself in a circle of innocent contacts, where, but for its leisurely growth to clinical recognition, it would cause a community sensation, if not scandal. However, tuberculosis will always lack the swift drama of the less dangerous smallpox or the less common poliomyelitis. Stealthily it succeeds, excelling them both!

Since everyone knows these facts, how are we to account for the observation that in my state four of every five patients who enter our sanatoria are in either a moderately or a far advanced stage of tuberculosis? Incomplete figures from a dozen Michigan sanatoria¹² for the past three years reveal that only 17.9 per cent of reinfection cases admitted entered during their minimal phase, while a report of the Detroit Department of Health¹² shows that adult cases reported during 1940 in that city were classified as follows: minimal, 16.4 per cent; moderately advanced, 44.4 per cent; far advanced, 39.2 per cent. Proud as you and I may be of progress in general, figures such as these strike close to home, and give you and me something specific to ponder. Compare them with New York City draft induction findings,⁶ where, by x-raying approximately the first 16,000 of their apparently healthy draftees, seventy clinically significant cases were found. But, gratifyingly, only 1.4 per cent of these were far advanced, 32.9 per cent moderately so, while the encouraging total of 65.7 per cent were discovered in a minimal stage. Later New York returns on larger groups are still incomplete, though from all indications they will prove closely parallel.

A report from Saranac Lake a few years ago revealed that after fifteen years had elapsed, fatalities among their patients had amounted

to 72 per cent of those first treated in the far advanced stage, 27 per cent of those who entered in the moderately advanced stage, and only 10 per cent of those fortunate enough to receive care from the minimal stage onward.¹⁸ Yet Bloch³ is still able to point out that even in these later days the far greater share of our tuberculosis bed capacity stands filled with cases of advanced disease, patients endlessly occupying space that otherwise would guarantee cure to most cases of early tuberculosis. It seems needless to emphasize that every late case was once an early one, remaining symptomless for months or years. But it *does* need to be said, and it *does* need to be remembered! Obviously, the prevention of advanced tuberculosis now is the surest road to the eventual elimination of all tuberculosis.

Strong words on the subject of how a portion of our profession lags in utilizing up-to-the-minute methods came recently from Kendall Emerson,⁷ when he wrote: "Too generally an external examination of the chest is taken as evidence of freedom from active tuberculosis. . . . But he who today stops at that point exposes himself to a charge of malpractice." He goes on to explain how important is the time-honored routine of inspection, palpation, percussion and auscultation. It is only when it is trusted to reveal what it is powerless to disclose, namely, the non-existent physical signs of the presymptomatic minimal infiltration, that censure descends upon the method and the examiner who remains within its limits.

Shall we stop taking histories? Must we throw away our stethoscopes? Are we to turn over to tests or machines some of the most fascinating detective work in medicine? No, assuredly not! Back of every procedure there must abide the seasoned judgment of experience, the careful assembling and evaluation of all available data, that only the thinking clinician can supply. But this implies that we all shall use every modern agent of proved worth, slighting none, and constantly seeking newer and better ones.

Diagnostic Aids

History of Contact.—It is vital and fruitful to examine carefully and repeatedly the known contacts of already diagnosed infectious tuberculosis. But we shall be deluded and disappointed if we reserve comparable scrutiny to those others of our

patients who, when consulting us, happen to volunteer a history of tuberculosis exposure. Most apparently healthy people remain ignorant of definite contact, even when closely quizzed after they are found bearing significant lesions. Among several hundred positive tuberculin reactors at Carleton College, only 15 per cent have recalled for me actual exposure, while Bridge and Thurston⁴ report that in a series of 1,000 new cases of tuberculosis found in their clinic, only 24 per cent were able to relate their illness to a known source. Let no physician scoff at the value of meticulous history-taking. But to rely on history of tuberculosis contact as the sole prerequisite to further investigation is a serious oversight. Tubercle bacilli issue no public statement when they move to a new residence.

Physical Examination.—None of us will debate the dictum that to await the occurrence of symptoms is inexcusable. But it is equally true that the classical signs described by many textbooks on physical diagnosis as pathognomonic of pulmonary tuberculosis are also now well recognized as late manifestations of consumptive disease. No competent authority seems to outline physical phenomena which we are to search for in presymptomatic tuberculosis, the plain reason being that no such signs are known. Since a thorough thoracic examination is directed at many conditions other than early tuberculosis, no practitioner should allow his trained eyes, ears or hands to abandon their art. But, after the disillusioning experience of being unable to elicit signs over many a minimal lesion, even frequently subsequent to x-ray disclosure, or the still more sobering jolt of encountering older, grosser, but deeply remote trouble similarly devoid of recognizable surface signs, one must display more than average temerity to continue exclusively a process of feeling and listening where one ought also to be looking. Roentgenography is as logical and necessary a part of the physical examination of the heart and lungs as is urinalysis in an appraisal of the urinary tract.

The Tuberculin Test.—As Myers remarks,¹⁶ the tuberculin test is not claimed to be infallible. But he is perfectly correct when he urges it as our only clinically accurate method for discovering all those whose bodies harbor live tubercle bacilli. Having located the positive reactor, of course, our search has only begun. But, in my

opinion, we have omitted a basic clinical step if we fail to begin with, or at least to include, a check on the presence of tuberculin allergy or anergy. The test is easy, rapid, inexpensive, harmless. In our experience among students, the Mantoux intradermal technique, with its controlled dosage of proved potent tuberculin definitely introduced between the skin layers, is preferable to other methods, and well worth the admitted labor involved. It is hard to imagine its becoming permissible for doctors to object to any reliable diagnostic procedure in any disease on the mere basis of its calling for effort, a little time, a minor cost and intelligent interpretation.

Sweany,²⁰ in a recent paper, had this to say about the interrelation of tuberculin test and roentgenogram: "It is not a question of which is more important or which should come first any more than deciding which pint makes the quart. The precedence of the one or the other depends on the circumstances." He suggests that while mass surveys may employ the x-ray preliminarily, other forms of practice will usually adhere to the routine of physical examination, tuberculin test, x-ray, sputum examination and so forth.

Beginning with a small, preliminary dose, and following it by a stronger injection in negative reactors, final tuberculin dosage must reach adequate levels before we are safe in dismissing the patient as negative. In all but children, dosage should reach 1 mg. Old Tuberculin or 0.005 mg. Purified Protein Derivative. We have found the Vollmer patch test equally as much work as the hypodermic method, though it avoids use of the needle where that must be considered. In our hands the patch test has given results approximately no better than those of the first strength dose of PPD or 0.1 mg. OT. While it has its place, like Kereszturi,¹¹ I feel that "the evidence so far available does not indicate that it can be used to replace in reliability the well established Mantoux test." Certainly, national student health statistics have corroborated this opinion,¹⁴ which is somewhat less favorable than the good results reported by Vollmer²² and some others, notably pediatricians.

The Roentgen-ray.—If we regard tuberculin as aimed at finding infected individuals, then the x-ray becomes the method *par excellence* for finding pulmonary lesions. Here again, however, we must be mindful of the medium's limitations.¹⁵ Even on the best films there can

appear only those thoracic abnormal densities so placed and so gross as to cast shadows. Nor will all such suspicious shadows prove tuberculous on follow-up. The trend^{5,6,17} to rollpaper films, to 4x5 inch and (less satisfactorily) to 35 mm. photographs of fluoroscopic images, promises great economy of time, money, material and storage space, once a few present technical snags and shortages are overcome. Their utility is bound up with mass surveys, however, and, as yet, they cannot be fitted into the private physician's study of single cases. Stiehm bids fair to revolutionize x-ray procedures by his technique of spot-filming minimal lesions discovered by the fluoroscope in planes not accessible to conventional flatfilms or even stereoscopic views.¹⁰ It appears that the best available team is the tuberculin test, followed by a good film, further reinforced by those additional facts undoubtedly ascertainable granted that an experienced examiner makes minute fluoroscopic study by means of the fastest possible screen.

Clinical and Laboratory Procedures.—In determining the significance of early lesions, it seems unnecessary to do more than mention the demand for exhaustive, patient, clinical study of temperature, pulse rate, weight and the periodic scrutiny of suspicious lung shadows by serial films for the possibility of pathologic progress. Especially must we be alert in following the totally unpredictable course of new lesions seen in adolescents and young adults. Delays or lapses in follow-up are often succeeded by the finding of unexpectedly rapid advance of what initially may have seemed minor infiltrations. Much remains to be learned about tuberculosis and the changing phase in which tuberculosis management now finds itself. Due to the later ages at which patients are now apt to be first infected, entirely novel clinical manifestations are being noted.

Among our laboratory aids, total and differential leukocyte counts may be of supplementary value prognostically, though they may help but little with diagnosis.¹⁹ So, too, the erythrocyte sedimentation rate, being non-specific, has proved of more assistance in checking up on the outlook in known cases than in clinching the identity of suspicious ones. Sputum examinations are essential, and there should be no limit to our repeating them as frequently as necessary. The oftener we go fishing—where there are fish—the more likely

TUBERCULOSIS—LYGHT

TABLE I. TUBERCULOSIS DIAGNOSED AMONG
AMERICAN COLLEGE STUDENTS

1937—1940
(Reported to the Tuberculosis Committee,
American Student Health Association)

Status of Institutions (475 colleges reported in 1940)	New Cases Found (per 100,000 students, three-year average)
I—Colleges and universities with no organized case- finding program	14
II—Colleges and universities with an organized case- finding program	177

are we to bring some home. Probably the greatest advance in recent years in evaluating the sputum-free or sputum-negative case has been the renewed use of aspiration of fasting gastric contents, followed by guinea pig inoculation. Investigators have reported as high as 75 per cent of their cases bacilli-positive by this means, and Stiehm¹⁰ believes it a better index than the x-ray in determining favorable or unfavorable progress in subclinical cases. Floyd and Eastman⁹ also seem favorably impressed by this method in examining children of tuberculous families, having uncovered a significant number of bacilli-positive cases in that way only.

The Value of These Measures

Do these agents enable us to discover tuberculosis in its early, curable, usually non-infectious stage? The outstanding success of many noted workers answers the question affirmatively. In Michigan such men as Vaughan and Douglas⁵ have added immeasurably to our knowledge of case finding and to the improvement of its weapons. Let me quote figures with which I am most familiar, however, namely, those from the colleges and universities of the United States and Canada.¹⁴ Last year, among just under half a million students, 248 schools with case finding programs discovered 637 new cases of tuberculosis, 292 of which were diagnosed as clinically active by all accepted standards. Almost all in this latter category left college to begin immediate treatment. In another group of over 200 institutions without regular case finding, there were enrolled 200,000 young people, but the year's returns reported only twenty-one active and fourteen arrested cases found, few of them in a pre-

TABLE II. DEATHS DUE TO TUBERCULOSIS
World War I

	Rates per 100,000 population	
	1914	1918
Belgium	124	245
England and Wales	135	192
Germany	143	230
Italy	145	209
France	228	246
Austria	256	403
United States*	147	150

*Not a belligerent until 1917.

symptomatic stage, but largely diagnosed when suspicious, late symptoms had appeared (Table I).

My last wish would be to suggest that mass case finding is the *only* hope for eradicating tuberculosis from our population. I am impressed, nevertheless, by the fact that the only thing mass surveys have done is to seize on, apply and prove the truisms that tuberculin testing, the x-ray and intelligent clinical and laboratory evaluation are the only modernly justifiable ways of searching for early tuberculosis. All these methods are handy to every physician, and, if every doctor in America began tomorrow to apply them individually, the collective total of our efforts would be the greatest and most successful mass attack in medical history, with no weak salients in our front by which the enemy might escape.

The Part War Plays

The presence of a great national emergency in the midst of a stupendous world conflict intensifies and emphasizes the need for the adoption by the entire profession of methods conferring maximum efficiency. European figures (Table II) from the last World War² disclose how rapidly and steeply tuberculosis mortality climbed in the warring European nations during and for some years after the fighting. With civilian populations so much more intimately at war and living under such deplorable sanitary conditions, it can only be expected that more extensive ravages by tuberculosis will occur as the by-product of World War II.

Edwards, Long, and others^{6,8,18} have refreshed

our memories concerning the appalling suffering and waste in our own armed forces dating back to the last war, traceable in large part to the manifest ineffectiveness of routine physical examinations in finding pulmonary tuberculosis in supposedly healthy men. In Canada, where now every recruit receives a chest x-ray,^{1,10} the toll from the overlooked tuberculosis of 1914-1918 amounted to six tuberculosis deaths to every 100 deaths due to wounds, twenty-five tuberculosis pensions to every 100 pensions for wounds, at a cost of over \$150,000,000. Following Canada's and Australia's example, the United States is tackling the problem by preinduction chest x-rays and other appropriate studies to rule out actively tuberculous recruits or those whose lesions might be re-activated by service. But so far, local facilities have been provided so that only about half our men are being x-rayed. Then they are billeted with non-filmed men from less exacting or less fortunate centers who may promptly infect the healthy individuals. It is to be hoped that the x-ray program will soon extend to embrace every recruit in each of the services, with adequate follow-up during the entire period he wears his country's uniform. The staggering total of \$960,000,000 had been expended up to last October to care for the tuberculous veterans of the first World War. That we are moving to avoid a repetition of that sad experience is encouraging, especially when we reflect that the personal loss and suffering never can be reduced to figures. But we cannot turn from a consideration of what is right and best for our soldiers and sailors without at once perceiving that every citizen, in uniform or out, man, woman and child, white, red or black, deserves equally to be saved from tuberculosis by the vigilance of an awakened medical profession.

Conclusion

In conclusion, let me quote the words of Vaughan,²¹ of your great University of Michigan. He wrote, not so long ago: "... The friendly family physician must be prepared so that he understands that the stethoscope is no longer the accepted means of discovering the early case. He must be taught that minimal tuberculosis is found by the roentgenological examination of the chest, usually preceded by the tuberculin test as a means of screening out the suspects." There, succinctly stated, Vaughan has summed up in one short paragraph what I have needed half an hour to

say. I well know that the physicians of Michigan require no persuasion that these words are true. The challenge before us is that we remain dedicated to the proposition that, in medicine, as elsewhere, actions speak even more loudly than words!

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MSMS

The gap between proven knowledge and effective action based on that knowledge, is nowhere more glaring than in our fumbling efforts at control of the most common of the infectious diseases.

We know that the time lost from the common cold would build hundreds of the planes we now need so much. Yet, the simple prophylactic measure of isolating all those with colds in early stages is applied routinely to a few school children only.

This failure to coordinate knowledge and action is also all too common in our efforts to control and eradicate tuberculosis.—*Tuberculosis Abstracts*, April, 1942.

The Diagnosis and Treatment of Placenta Previa*

By William F. Mengert, M.D.
Iowa City, Iowa

WILLIAM F. MENGERT, M.D.



M.D., Johns Hopkins Medical School, 1927; Diplomate, National Board of Medical Examiners, 1928; Rotating Intern, University of Iowa Hospitals, 1927-28; successively, departmental intern (1 yr.), assistant (1 yr.) and instructor (2 yrs.) in the Department of Obstetrics and Gynecology, University of Iowa, 1928-32. Fellow in Gynecologic Research, Gynecologic Hospital Institute of Gynecologic Research, University of Pennsylvania, 1932-34; Assistant Professor of Obstetrics and Gynecology, University of Iowa, 1934-38; Associate Professor from 1938 to date. Associate Obstetrician and Gynecologist to the University Hospitals since 1934. Diplomate of the American Board of Obstetrics and Gynecology 1933. Member and officer of numerous medical organizations as well as fraternal and social groups. Author of several medical articles.

■ DURING a lifetime experience with obstetrics, the average physician will meet placenta previa among eight or ten of his patients, each of whom is a potential candidate for fatal hemorrhage. The results of the hemorrhage may be minimized with modern therapy and with the increasingly common employment of blood transfusion. Nevertheless, it is usually the management by the physician, and not chance, which determines whether the woman is to live or die.

Blood transfusion is frequently life saving and is performed much more readily in the hospital as contrasted with the home. Other hospital facilities are so important in management that it may be stated as a maxim that, all patients with suspected placenta previa should be immediately removed to a hospital. Upon her arrival, if not before, she should be cross-matched and a donor selected in preparation for immediate blood transfusion. As a third maxim, it should be stated that the establishment of an absolute diagnosis of placenta previa constitutes an indication for the prompt termination of pregnancy.

Today, commonly reported maternal mortality rates vary downward from three per cent. Although these rates are near to an irreducible mini-

mum, it must never be forgotten that the low implanted placenta constitutes a serious threat to the mother's life. It is only by intelligent and prompt treatment that serious and perhaps fatal hemorrhage is preventable. There can be no "appeasement" with placenta previa.

Among 14,569 obstetric patients at the University of Iowa between July 1, 1926, and July 1, 1941, there were seventy proved cases of placenta previa, an incidence of 1:204. This figure may be somewhat higher than average experience, since complicated cases tend to gravitate to a medical center. However, it is probably safe to say that the condition occurs at least once in 300 obstetric patients. The variety of previa was distributed as follows: marginal 54, partial 33, and complete 13 per cent of the series. In other words, partial and even complete coverage of the cervical os, together constitute less than half of all cases seen. This fact has an important bearing in the consideration of the type of treatment, and will be discussed later. Of the three types of previa, marginal, partial, and complete, or first, second, and third degree, respectively, accurate classification can be made only when the cervical os is fully dilated. For example, a placenta which covers the partially dilated os may fail to do so when it is fully open.

Diagnosis

The symptomatology is relatively meager. Painless, apparently causeless, bleeding occurring in the third trimester of pregnancy must be considered to be placenta previa until the diagnosis is definitely established. The first hemorrhage often occurs at night; the woman is awakened by a wet bed to find herself lying in a pool of blood. Fortunately for the patient, the first hemorrhage is seldom fatal. In general, the earlier in pregnancy the bleeding manifests itself, the more severe is the variety of placenta previa. This fact is readily demonstrated by calculating the average birth weight for each variety. In the Iowa series, the average weights of the babies born of mothers with marginal, partial, and complete placenta previa were: 2,750, 2,480, and 1,875 grams, respectively. From these figures it is readily seen that the fetus tends to be most immature with complete, or central, previa. Only with the marginal variety do average birth weights tend to be above 2,500 grams, the borderline between maturity and prematurity.

There is but one certain diagnosis of placenta

*From the Department of Obstetrics and Gynecology, the State of University of Iowa. Presented at the Seventy-sixth Annual Meeting of the Michigan State Medical Society, Grand Rapids, September 18, 1941.

previa, namely, digital vaginal palpation of the placenta through the cervical os. Not only may the diagnosis be established with certainty, but also it is possible to ascertain the degree. When the prepared and gloved finger, introduced through the os, cannot feel the placenta, the patient does not have placenta previa. Sometimes the finger encounters the placental edge at the cervical border (marginal previa), sometimes the incompletely dilated os is partially covered (partial previa), and occasionally the finger encounters placenta everywhere. In the last case, one may be dealing with either a severe grade of partial, or a central placental previa, and final diagnosis must be made by the post-delivery examination of the placenta. This last differentiation, however, is largely academic, since from a practical standpoint of choice of therapy it is much more important to differentiate between partial and complete occlusion of the incompletely dilated os. All other methods of diagnosis must be classed as helpful, but not absolute. Vaginal examination was done in sixty-three of the patients in our series. In the remaining seven the diagnosis was based on the examination of the placenta after delivery, the palpation of a placental edge per rectum, and on the history. All of these seven patients except one with a second degree, had the mildest form, that is, marginal placenta previa. When the membranes are intact except for the point of rupture, the distention of the amniotic sac with water after delivery will usually demonstrate the intra-uterine relationships of the placental margin and membranes with considerable clarity. It is assumed, of course, that the point of rupture of the membranes occurred directly over the cervical os.

Digital vaginal examination must never be performed until the delivery and/or operating room is completely set up for any emergency, since palpation of the placenta may loosen it sufficiently to give rise to brisk bleeding. Unless one is prepared to institute measures of control at once, serious hemorrhage may result. Many object to vaginal examination on the basis that subsequent cesarean section is thereby contraindicated. We do not feel this is the case. The dangers of infection following a well-conducted, sterile, vaginal examination are very small and are negligible in comparison with those associated with abdominal delivery. Moreover, many cesarean sections are per-

formed on the basis of history alone. Such patients frequently do not have placenta previa, and their number is greater than those actually with the condition. If cesarean section is contemplated it is suggested that a single properly conducted, sterile, vaginal examination be done in surgery after the patient is prepared, but before the incision is made. By this means, many women without placenta previa, but who bleed during the last trimester of pregnancy, will be spared a useless operation.

Roentgenography

By a soft tissue technique employed in almost 200 pregnant women, Dippel and Brown in 1940 were able to visualize the placenta in about 90 per cent of the cases. A single, lateral roentgenogram usually sufficed, since the anteroposterior view was not found to be of particular aid. Apparently the placenta in normal women is generally attached to either the anterior or the posterior wall and seldom crosses the dividing line between them. For this reason, lateral views are most likely to demonstrate the placenta. By exclusion a placenta visualized in the upper part of the uterus obviously cannot be near the os. However, this method offers only negative evidence. Positive diagnosis may be obtained in about three-quarters of women with placenta previa by the visualization and study of the relationships between the urinary bladder and the fetal head, the craniovesical space.

Cystography in the diagnosis of placenta previa was introduced in 1934 by Ude, Weum, and Urner, who outlined the soft tissue space between the fetal skull and the bladder by instilling sodium iodide into the viscus. Prentiss and Tucker, working at Iowa, felt that a liquid contrast medium, by its own weight, might produce some distortion of the bladder, and suggested the use of air. This is the technique currently employed at the University of Iowa.

1. Low cleansing enema (desirable but not necessary).
2. Empty bladder with a catheter.
3. Introduce 100-120 cubic centimeters of air and remove catheter.
4. Anteroposterior film tube centered on bladder, table tilted feet down 10 degrees from horizontal.
5. Right and left semilateral views with pelvis turned 35 degrees, first to right and then to left side.

Theoretically, an anteroposterior and a directly lateral exposure will show 3 dimensional, spatial relationships with absolute fidelity. However, the directly lateral exposure cannot be used because of technical roentgenologic difficulties and, therefore, the semilateral was introduced. Inasmuch as a floating head might easily lead to a false interpretation, a constant force which holds the head over the pelvic inlet is necessary in order to arrive at consistent results. Gravity is such a force, and provides the reason for tilting the foot of the table downward. The interpretation of the roentgenogram in vertex is not easy, but is usually so complicated by breech and transverse presentations that it is advisable to forego the use of cystography in such cases. Normally the craniovesical space as seen on the roentgenogram is occupied by the fetal scalp, membranes, uterine wall, peritoneal fold and bladder wall; in placenta previa it is widened by the interposition of some portion of the placenta. In the normal woman, the arc of the bladder shadow parallels the arc of the fetal head at a constant distance of 1 to 2 centimeters. In placenta previa the arcs are not uniformly parallel, and where widening occurs, it is usually of the order of 3 to 5 centimeters. The necessity for the employment of *both* semilateral positions is seen in the accompanying illustrations. The anteroposterior and one of the semilateral views give no evidence of the condition, while it is clearly demonstrated on the second semilateral. In the seventy patients observed at the University of Iowa, cystography was employed in diagnosis seventeen times, with a resulting accuracy of 76 per cent. We feel that it represents a distinct advance in diagnostic methods, but that it cannot, and should not, displace vaginal examination.

In summary, a reliable diagnosis of placenta previa can be made only by sterile vaginal examination, which should be done at the time therapy is contemplated because of the danger of instituting hemorrhage.

Treatment

Many methods of treatment of placenta previa are currently in vogue, and may be classified under the headings of vaginal and abdominal delivery. Some of them are distinctly dangerous, others offer the mother nearly identical chances of survival but vary widely in their effect on fetal mortality rates.

Since most of the methods currently employed are reasonably safe for the mother, it is desirable to give consideration to the baby and to select a method which results in the highest possible salvage.

Although a considerable variance in opinion exists concerning the best method, all physicians are in accord with regard to two basic measures. (1) The patient should be removed to a well-equipped hospital. (2) She should be immediately prepared for blood transfusion and the donor must remain on call until the emergency is ended. Blood transfusion is not necessary in every case of placenta previa, since some patients do not lose abnormal quantities of blood. On the other hand it was used in almost half of the seventy patients in this series. When the patient is in, or near, a condition of shock following severe hemorrhage, the use of blood transfusion is life-saving. The treatment of shock has done more, perhaps, than any other single thing to reduce the maternal mortality rate in placenta previa. The question of whether to deliver the patient by the vaginal or the abdominal route, pales into insignificance in the face of the necessity of combating shock by blood transfusion.

In a few instances, when the fetus is questionably able to survive after birth, and when the initial hemorrhage is minimal it may be justifiable to put the woman to bed in a hospital. In such cases no attempt should be made to establish an absolute diagnosis by vaginal examination because of the associated dangers of hemorrhage until the fetus grows to adequate size, or until additional bleeding necessitates treatments. Roentgenologic and cystographic examination are permissible, but otherwise the patient must remain absolutely at rest and under constant observation. If hemorrhage recurs despite bed rest, preparation for immediate delivery must be begun. Watchful waiting is rarely justifiable, and the practice is not generally recommended. Except as outlined, and for the reason noted, the expectant treatment of placenta previa should not be employed.

Dangerous vaginal methods of delivery include packing the cervix and vagina, and manual dilation of the cervix. A vaginal pack, no matter how carefully applied, is a dirty thing. The longer a pack remains in the vagina, the more certain is the chance that serious infection will arise. One of the two deaths in our

series occurred several days postpartum from acute endocarditis and pneumonia in a woman who had been packed prior to her admission to the hospital. It is difficult to set a time limit on the safety of a vaginal pack, but as a general rule the danger of infection increases rapidly after six or eight hours. Manual dilation, or more popularly "manual laceration," of the cervix has no place in the treatment of placenta previa. No matter how carefully performed, forcible dilation of the cervix cannot be done without associated laceration. Since the placenta is inserted around the cervix in a patient with placenta previa, and since the placental site of the uterine wall is soft and contains many large blood sinuses, a tear in this region may give rise to uncontrollable and perhaps fatal hemorrhage. The risk does not even begin to justify the use of the method.

Other vaginal methods include: spontaneous labor with or without antecedent rupture of the membranes, scalp traction with some type of instrument which does not produce serious injury, the use of a hydrostatic bag, and Braxton Hicks version.

Bleeding in a patient with placenta previa is, of course, from the maternal blood sinuses underlying the placenta, and none of it is fetal. During the latter part of pregnancy the lower uterine segment begins to form, and there is a considerable realignment of the cervical tissues, since they move upward to take part in the formation of the passive uterine segment. As this movement of tissue occurs, the low-lying placenta becomes partially detached, and maternal blood sinuses are exposed. The exposed sinuses may be occluded by clotting, but as effacement of the cervix continues, additional sinuses are exposed, and hemorrhage recurs. Obviously, the lower the implantation of the placenta, the more completely it covers the os, and the earlier in pregnancy it will become partially detached.

The problem in all vaginal methods of treatment of the condition, therefore, consists in the control of hemorrhage during the time that the cervix is dilating sufficiently to permit delivery of the baby. The mechanism of control is essentially the same in all of the accepted vaginal measures, and consists in causing sufficient force to be applied to the placenta so as to jam it against the bleeding maternal sinuses. It is similar in principle to pressure against an open

wound with a wad of gauze. Generally the natural hemostatic action of the "blood-tight" postpartum uterus provides sufficient control so that bleeding is seldom seen after the patient is delivered.

If only a small portion of the cervix is involved, the force exerted by the uterine contractions of spontaneous labor against the margin of the placenta will be sufficient to check bleeding. On the other hand, if a partial or complete variety of placenta previa is encountered, there will be such a large area of placental separation, and so many maternal sinuses exposed, that uterine contraction will not afford sufficient pressure. In such a case, additional force applied through traction on the baby's head, the medium of a hydrostatic bag, or traction on a leg, is necessary.

Spontaneous labor with, or without, antecedent rupture of the membranes will successfully treat *more than half* of all cases of placenta previa, since 54 per cent of our cases were marginal. If labor ensues spontaneously a short time after the initial hemorrhage, it may not be necessary to rupture the bag of waters upon confirmation of the diagnosis by sterile vaginal examination. On the other hand, with the patient not in labor, rupture of the membrane is necessary in order to institute pains and control the hemorrhage. Eighty-nine and one-half per cent of the women so treated were delivered of live babies. Of all the vaginal methods employed at the University of Iowa, this offered the best chance of fetal survival, and no mother so treated perished. Artificial rupture of the membranes in those patients in whom the placenta merely encroaches upon the cervical margin is a simple procedure, is applicable to at least half of all cases, and offers such excellent chances of fetal and maternal survival that its use is earnestly recommended.

Following simple, artificial rupture of the membranes, bleeding is occasionally not completely controlled, because the unaided power of uterine contraction does not press the placenta against the bleeding maternal sinuses with sufficient force. In such instances, it is our custom to employ traction of one-half or one pound to the scalp with the forceps devised in 1925 by Willett. It is not necessary to have at hand the identical instrument, since a firm grasp of the scalp may be secured with two or three Allis clamps, or with volsella. Many shrink from the employment of such a "brutal" device but after all, damage is superficial and exterior to the skull. Of the six pa-

tients recently so treated, five of the babies survived and in no instance did any complication develop from the scalp wound and suturing was never necessary. In fact, one of the babies which survived weighed 1600 grams ($3\frac{1}{2}$ pounds) at birth. When scalp traction is applied by means of Allis clamps, it is necessary to employ at least two of them, since adequate traction will usually pull off a single clamp. It is essential to secure a bite of the *whole* thickness of the scalp. Timidity of the operator resulting in an inadequate grasp of the scalp will invariably cause slipping of the clamps. Scalp traction, in our series, resulted in a low fetal mortality rate, and was second only to artificial rupture of the membranes plus spontaneous labor in its beneficial effect on fetal salvage. This speaks well for the method, since it was employed only in those patients whose hemorrhage could not be controlled by the unaided efforts of labor and therefore presumably suffered from the more severe degrees of previa. Spontaneous labor and scalp traction possess the tremendous common advantage that during the process of cervical dilation, descent of the head occurs. Upon completion of cervical dilation, it is a simple matter to wait for spontaneous delivery, or to hasten matters by a simple, *low* forceps operation. Spontaneous labor with or without antecedent rupture of the membranes will control *all* cases of marginal and a few of the simpler varieties of partial placenta previa with great success. Scalp traction in addition will suffice to treat successfully all of the simpler, and a few of the more severe, varieties of partial previa. For instance, the use of the Willett's clamp resulted in complete control in one of our patients where the placenta covered most of the partially dilated cervical canal.

Over 75 per cent of all cases of placenta previa may be treated by one or both of these simple measures with practically no danger to the mother and less than 20 per cent fetal mortality rate.

Treatment of Severe Grades

When the more severe grades of partial and central placenta previa are treated vaginally, it is usually necessary to employ a more positive type of pressure than that afforded by scalp traction. The hydrostatic bag represents a device which can be employed with considerable success in so far as the mother is concerned. It is necessary to

pierce the placenta with a long instrument, such as a uterine dressing forceps, and to insert the collapsed bag directly into the amniotic cavity. With a tractive force of from one to two pounds, applied after the bag is distended with sterile water, hemorrhage is practically always checked. After the cervix becomes fully dilated and permits the bag to slip into the vagina, hemostasis is lost and immediate delivery is demanded. Since the baby's head seldom follows the bag through the cervix, the application of forceps is a practical impossibility and podalic version and extraction becomes the operation of choice. The substitution of the after-coming head for a vertex presentation invariably increases the danger to the baby and should be avoided whenever possible. Recently, we have obviated the necessity for version by instituting scalp traction as soon as the bag is expelled, and believe that some babies can be saved by this method. Scalp traction alone is unsatisfactory in the more severe varieties of placenta previa since sufficient force to check hemorrhage will tear the clamp loose. On the other hand, the amount of scalp traction necessary to prevent bleeding and insure descent of the head is greatly diminished after hemostasis and dilation of the cervix have been achieved through the medium of a bag. The employment of a hydrostatic bag in the treatment of the severe varieties of previa represents a safe and feasible method of treating the mother. Hemostasis is excellent and the maternal dangers are no greater than with any other type of therapy. From the standpoint of the baby, however, the functional area of the placenta diminishes considerably with increasing cervical dilation when the bag has been inserted through an artificially produced hole in the organ. For this reason, the hydrostatic bag, while serving the mother admirably, definitely increases the risk to the baby in those cases which involve a considerable area of the placenta.

Braxton Hicks version presents the combined disadvantages of version and of the hydrostatic bag. Fetal risk is increased not only because of the substitution of the after-coming head, but also because a considerable portion of the placenta is rendered non-functional. On the other hand, performance of Braxton Hicks version requires no array of instruments and can save maternal lives in an emergency. The technic is relatively simple; the operator inserts two fingers through the partially dilated cervix and the placenta, or around the placental edge. The abdominal hand

depresses the baby's breech until the fingers of the vaginal hand are able to grasp a single foot, which is withdrawn through the cervix and attached to traction. The progressively increasing circumference of leg, thigh and buttocks simulate the hydrostatic bag in action.

Maternal Mortality

At the University of Iowa, where the vaginal treatment of placenta previa is generally employed, 2 of the 70 mothers succumbed, a maternal mortality rate of 2.86 per cent. One of these deaths, previously mentioned, occurred from acute endocarditis and bronchopneumonia during the second postpartum week in an eighteen-year-old primigravida whose vagina and cervix had been packed prior to admission. Her blood loss during delivery was inconsequential and there was no secondary anemia which might be considered to be a contributing cause of the sepsis. The other fatality involved a 35-year-old gravida 9, admitted in labor with a complete placenta previa and with no evidences of shock. Hemorrhage was controlled with a total blood loss of only 500 cubic centimeters but while under the influence of a general anesthetic the patient's heart suddenly stopped beating. Post-mortem examination revealed a septicemia which obviously was present on admission. It is difficult to decide whether or not this caused, or contributed to, her death. Between January 1, 1936, and July 1, 1941, forty-two patients with placenta previa were treated without a maternal death.

Fetal Mortality

A discussion of fetal mortality rates requires the division of the cases into two groups: the total series of seventy, and a group of fifty-nine potentially viable babies weighing 1500 or more grams at birth. Each of the remaining eleven fetuses weighed less than 1500 grams ($3\frac{1}{2}$ pounds) and all succumbed. The uncorrected fetal death rate of the entire series was 44.3 per cent. Excluding the 11 abortions, the death rate for the potentially viable group of 59 babies was 33.9 per cent. As might be expected, the fetal mortality rate rose sharply with the severity of the variety of previa. In the potentially viable group it was 12.1 per cent of the marginal, 59.2 per cent of the partial, and 75 per cent of the complete previas. The baby of a woman with severe varieties of placenta previa treated vaginally, faces a triple hazard: (1) it is premature, (2) it is par-

tially asphyxiated because of placental compression, (3) it must undergo the rigors of a difficult and traumatic delivery. Lest these statements be interpreted as a plea for routine abdominal delivery, it must be reiterated that over three-quarters of all patients with placenta previa can be treated by spontaneous labor and/or scalp traction with essentially no danger to the mother and less than a 20 per cent fetal mortality rate.

Following a review, several years ago, of the University of Iowa experience with placenta previa, the fetal mortality rate among potentially viable babies was found to be 37.5 per cent. It was evident that babies were dying not because of the basic condition, but because of the method of delivery. The standard method of treatment employed in a majority of the patients at the time consisted in the use of the bag followed by version and extraction. Since more than half of the babies died, our procedures were modified so as to exclude the operation of version and extraction in so far as possible and to encourage the use of spontaneous labor and scalp traction. As a result, the fetal mortality rate since then has been cut more than half.

Treatment

Several facts regarding placenta previa are apparent from the data obtained from the seventy patients: (1) more than half of all cases are marginal, and need little more than blood transfusion and the institution of labor, (2) the vaginal management of all cases is safe and feasible for the mother, (3) the vaginal treatment of severe varieties imposes a considerable danger to the baby.

Since the mother can be treated with equal safety either by vaginal or abdominal delivery, it is believed that cesarean section should be performed only when it is clearly indicated for the sake of the baby. Excellent maternal and fetal survival rates can be achieved by very simple vaginal means in marginal, and in the less severe grades of partial, previa, and general observance of this rule would limit the use of abdominal delivery to the complete and the more severe grades of partial placenta previa.

In the present series of seventy patients, severe grades of placenta previa were encountered in less than 20 instances. This would not necessitate any very large series of cesarean sections among

a total number of more than 14,000 obstetric patients. Even if all patients with placenta previa are treated by abdominal section, the number is relatively small. So long as the use of cesarean section is confined to those patients actually suffering with placenta previa, and is not employed indiscriminately in all women experiencing bleeding during late pregnancy, no serious objection can be justifiably raised against it. Undoubtedly, cesarean section offers the baby of a mother with complete, or severe, grades of partial previa, its best chance for life. On the other hand, when the fetus is known to be dead, or is obviously too small for existence in an extra-uterine environment, the employment of a hydrostatic bag should be the method of choice. At the present time, therapy at the University of Iowa has been modified to include the use of abdominal delivery for the sake of the baby in the severe varieties of placenta previa. However, the average weight of the infant at birth in the 9 patients with central previa was 1875 grams and 4 of them weighed less than 1500. With the known tendency of the babies of such women to be premature and in some instances too small to survive, we believe that considerable thought should be evoked in a given case before resorting to cesarean section. It has a definite place in the treatment of the more severe varieties of placenta previa, but should be performed only in the interests of the baby.

Summary

1. All patients with suspected placenta previa should immediately be removed to a hospital.
2. The establishment of a definite diagnosis constitutes an indication for the prompt termination of pregnancy.
3. Every patient with suspected placenta previa should be cross-matched and a donor selected in preparation for immediate blood transfusion.
4. The treatment of shock represents the first and most important step in therapy.
5. Diagnosis should always be made by sterile vaginal examination, which should not be done until all preparations for the immediate treatment of any eventuality are completed.
6. Cystographic and soft-tissue roentgenograms represent a distinct advance in diagnostic methods, but cannot and should not displace sterile vaginal examination.
7. Manual dilation of the cervix has no place in the treatment of placenta previa.

8. Vaginal packing represents a dangerous method of therapy which should be resorted to only in extreme emergency.

9. Marginal placenta previa occurs in more than half of all cases and can be adequately treated from both a fetal and a maternal standpoint by spontaneous labor with or without antecedent artificial rupture of the membranes.

10. The use of scalp traction will materially decrease the fetal mortality rate.

11. The use of version and extraction should be markedly curtailed.

12. Cesarean section is indicated for the sake of the baby in selected cases of the more severe varieties of placenta previa.

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The Value of the Oxygen Incubator

The Survival of a Twenty-seven Ounce Baby

By J. C. S. Battley, M.D.
Port Huron, Michigan

THE survival of a small premature baby is always of interest; that of one, three months premature, weighing twenty-seven ounces at birth is so unusual as to merit a brief report.

The mother was a patient of Dr. D. J. McColl of Port Huron, Michigan. The pregnancy had been normal. On March 17, 1941, she had undergone the unwonted exertion of walking a number of blocks against a high blustery wind. Soon after reaching home, symptoms of labor appeared and a baby girl—twenty-seven ounces at the first weighing on the following morning—was born a short time after. The infant showed such an unusual amount of vigor, moving her limbs about, and crying lustily, that it was decided to send her to the Port Huron Hospital where facilities for premature care were available.

From the menstrual dates it was felt that the baby was fully three months premature. The point of change from the obligatory uterine phase of fetal life to the period during which life can go on apart from the mother has been somewhat arbitrarily placed at a weight of 700 grams which is reached about the sixth fetal month although this certainly is not a constant point. The weight of this baby, twenty-seven ounces (780 grams) would place her quite near the dividing line and is further evidence of extreme prematurity.

At the hospital the baby was placed in an incubator

of the type devised at the Henry Ford Hospital and sponsored by the Michigan Department of Health. In addition to the heating unit the incubator contains a humidifying apparatus and an inlet for oxygen. Its construction allows the maintenance of any desired concentration of oxygen. The baby was blue and oxygen was administered at once with rapid improvement in her color, but it was found that continuous administration was necessary in order to maintain a normal color. The baby continued to show much activity and took water well within twelve hours of birth. As soon as the breast milk came in, it was offered and accepted readily. Fortunately, the mother was able to supply an adequate quantity of breast milk for two months. After this an artificial supplement was given for two weeks and then complete artificial feeding. The food selected was Mead Johnson's Olac because of its suitability for the premature digestive system. It was found satisfactory in every way. Feedings were given at first every two hours, at the end of the seventh week every three hours and shortly after discharge from the hospital on July 1st, every four hours. The baby was removed from the incubator at the end of the seventh week.

After a week of stationary weight the gain was rapid and constant. At the end of the first month the weight was two pounds; at the end of the third (the expected time of birth), four pounds; at five months, eight and one-half pounds and at seven months, twelve pounds. The weight curve compares favorably with the average curve for the last three months of fetal life.

The method of feeding used was at first by medicine dropper with attached rubber tube and finally by ordinary bottle. A successful transition between the two was affected by the use of a so-called "diddydoll" bottle. This small bottle and nipple served admirably for some time.

Cod liver oil concentrate was added on the twenty-eighth day, ascorbic acid on the thirty-second day and vitamin B concentrate on the forty-sixth. There was no reason for giving these vitamins at the time indicated. Indeed, the feeding was going so well that it was with some temerity that these substances were introduced for fear of upsetting digestion, especially as it was felt that breast milk contained a considerable supply of vitamins. They might well have been started earlier. As it is known that little iron is stored in the body at the sixth fetal month ferrous sulphate was started at the sixth week. Five drops of a liquid preparation was given initially and slowly increased up to two grains daily. This dose was continued until six months of age. It is possible that thereby an early anemia was avoided. The red blood count at five days was 4,400,000 and the hemoglobin 104 per cent; at one month the red blood count was 4,200,000 and hemoglobin 80 per cent; at three months 3,000,000 and 57 per cent and at four months 3,209,000 and 60 per cent. The white counts were not abnormal at any time. In the last three months of fetal life, considerable calcium is deposited in bone by way of the mother's blood. Breast milk contains sufficient calcium but its absorption from the intestine is limited and may not be sufficient to prevent the appearance of rickets in many

premature babies. To aid in the absorption of calcium abundant vitamin D was given to this baby and up to the end of the seventh month no clinical signs of rickets were observed.

During the first week the body temperature dropped as low as 92 degrees. The incubator temperature was at first 90 to 95 degrees and finally 85 degrees. By the end of the first week the body temperature became stabilized at 97 degrees. From this time there was a gradual rise reaching 98 degrees at the end of the sixth week. A constant rectal temperature of 98.8 degrees—which might be considered normal—was not reached until the end of the third month.

A strict isolation was observed at all times during the hospital stay. A minimum of handling was insisted upon and physical examinations were infrequently made. Everyone, with the exception of the nurses, was kept strictly away. No small amount of credit is owing to the faithful and meticulous care of the various nurses looking after the baby. The baby had two respiratory infections while in the hospital with fever as high as 102 degrees. These illnesses, which might readily have been fatal to so small a child, were well handled.

Discussion

No particular contribution was made to premature care unless it was the demonstration of what the prolonged use of oxygen will do. On account of continued cyanosis it was necessary to give oxygen continuously—a rate of two liters per minute was used—for twenty days and then at intervals for two weeks. During this latter period it was found that food was taken better if a few minutes of oxygen inhalation was given before each feeding. Possibly the respiratory organs at six months are not fully ready to take on the task of furnishing oxygen to the blood. When cyanosis is persistent it may be that an increased concentration of oxygen is necessary to enable the infant to establish itself apart from the mother. In this case the baby surely would have died without it. This baby provided much lay and medical interest. Smaller babies have lived but the survival of such a small one and so premature must be quite unusual.

Addendum

Since this time there have been several small prematures in the Port Huron Hospital to whom oxygen has been routinely administered, infants six to ten weeks premature and weighing two pounds twelve ounces to four pounds three ounces. Five in all have been so treated, three of whom were under three pounds weight. Some showed cyanosis at birth and some did not.

Oxygen was used as in the above reported case for periods of time varying from three to ten days, the longer periods for those babies who showed cyanosis on attempts to discontinue it sooner.

It is known that cyanosis is not the first sign of oxygen want; that as much as fifteen per cent oxygen desaturation may be present without apparent blueness. Oxygen was given with the thought that thereby adjustment to extra-uterine life might the more readily take place and that, perhaps, it might be a factor in saving babies who would otherwise die through inability to quickly adjust their physiology to the inhospitable new environment. There have not been enough cases and no controls from which to draw a considered conclusion but these infants have all done so exceptionally well as to give the impression that the oxygen was of value.

The Survival of a Thirty-six Ounce Baby

By Park S. Bradshaw, M.D.
Muskegon, Michigan

Baby C., one of twins, a white female infant, was born in a local hospital on February 19, 1941. Her birth weight was two pounds four and one half ounces. The baby was immediately placed in an incubator where her rectal temperature was maintained at 99° F. Fifteen cubic centimeters of a cow's milk formula was given hourly by medicine dropper. The weight dropped to twenty-nine ounces where it remained for one week. Then followed a gradual gain to thirty-four ounces at the age of three weeks and the birth weight was regained at one month. Her weight was three pounds and thirteen ounces at two months when I first saw the baby. At this time the color was poor, appeared very weak, and was unable to maintain a normal temperature. The feeding was changed to a prepared milk mixture and the baby was offered two ounces, by Breck feeder, every three hours. All the vitamins as well as iron were added to the diet. The subsequent two weeks produced a sharp gain in weight to four pounds, ten ounces. Gastro-enteritis invaded the nursery at this time and the baby began to vomit and had many loose, green and blood-tinged stools. No organisms could be found in the stool culture. All food was stopped for twelve hours and fluids were pushed to tolerance by the subcutaneous route for one week. An acidulated protein milk was well tolerated at this time and the baby gained weight in spite of the numerous stools. A second attack of diarrhea two weeks later again forced discontinuance of food for twelve hours and repeated hypodermoclysis for an-

other week. A blood count taken at this time revealed a hemoglobin of 30 per cent and red blood count of 1,580,000. Following a 55 c.c. transfusion of whole blood there was a marked improvement in the general appearance of the baby; the stools became normal in character and there was a progressive and sharp gain in weight. The baby was discharged in good general condition at the age of four months and three weeks, weighing five pounds and fourteen ounces.

Discussion

I feel that this case is interesting because it reveals the tremendous recuperative powers that a baby may have in spite of the severe handicaps of extreme low weight, superimposed infection, and secondary anemia.

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The Relation of Postgraduate Committees to Intern Instruction in Unaffiliated Hospitals

Should the State Society Assume Any Responsibility for Such Intern Instruction?*

By Burton R. Corbus, M.D.
Grand Rapids, Michigan

■ In Michigan we believe that a State Medical Society should concern itself with intern instruction, and might well assume some responsibility for the character of that instruction. We believe that it is a justifiable addition to the postgraduate educational activities now under way. Our interest in furthering medical education is traditional. In the transactions of the Michigan State Medical Society in the years immediately succeeding the Civil War we find evidence that the Medical Society was pressing the faculty of the University to raise the standards of undergraduate medical education. In later years the department of Postgraduate Medical Education at the University was organized in compliance with the recommendation and urging of the Society. It was Carl D. Moll, M.D., a delegate from Michigan, who introduced in the House of Delegates of the A.M.A. a resolution asking for

*From the proceedings of the Associated State Committees on Postgraduate Medical Education, Cleveland, June 4, 1941. Subject assigned and presentation by request.

the appointment of a committee on "Qualifications for Specialists," which led to the establishment of the specialty boards. Our State Society long ago accepted the responsibility for postgraduate medical education. The present most successful Michigan plan of continuous education, a co-operative activity with the University of Michigan and Wayne University, is familiar to you. To J. D. Bruce, M.D., must go the major credit for the conception, development, and the direction of this activity.

There is then in Michigan, as in many other states, a traditional justification for a state society to extend its educational activities if and when it can make an efficient contribution.

In undergraduate education the medical school has carried complete responsibility, and this is proper, for as Doctor Sladen said in a recent article, "Medical schools and universities must be the fountain head for matters pedagogical in medicine." We suggest, however, that there is need for a forum where the more or less cloistered faculty and representatives from the private practice group can come together to discuss matters pertinent to undergraduate medical education. There is a still greater need that such a group be brought together for the study of problems incident to intern training in general and especially the training in the unaffiliated or so-called "nonteaching" hospitals. Two years ago our State Society initiated a movement which led to the forming of the "Michigan Conference Committee on Prelicensure Medical Education." To this committee the State Society sends special representatives, and on the committee are the deans of the two medical schools, representatives of the State Hospital Association, the State Board of Registration in Medicine and the State Society's Postgraduate Education Committee, together with certain other especially interested men. We have made a start, but there are many angles to discuss, and we are still in the preliminary discussions.

I approach a brief survey of the intern situation from the viewpoint of a physician in private practice who, as an officer of the State Society over many years, has been in contact with the situation and is now chairman of this Conference Committee which is attempting to find a solution of the problem.

I am familiar with the increasing difficulties which the unaffiliated hospital, by which I mean one that is

not connected with a medical school, is having in obtaining interns. I am aware of the weaknesses in the character of intern training in many of these hospitals. I perfectly recognize the fact that there are just not enough interns to go around, that hospitals accustomed to intern service are much disturbed by the situation, I am also familiar with the fact that there are in my state, as in most states, instances of the exploitation of the intern. The present method cannot be adjusted to meet the desires of all the hospitals now using interns. It perhaps can be adjusted to meet more satisfactorily the needs of the first- and second-year interns.

Out of the somewhat confusing picture which this intern situation presents there is one outstanding factor which, more than anything else, seems to account for our difficulties; there is lacking the element of a fixed responsibility. The faculty of the medical school recognizes that the student is not on graduation, fitted to meet the exigencies of private practice, yet in general it finds itself unable to accept responsibility further than for that limited number of interns for whom a place may be found in its own hospital or those hospitals which are very closely affiliated with it. It is true that some medical schools attempt to maintain a degree of responsibility for all their interns by withholding diplomas until the completion of the so-called fifth year, but the plan has not proved to be wholly satisfactory. The Boards of Registration in Medicine, in many states, insist that graduation shall be followed by one year of internship as a qualification for licensure. Its responsibility ends with requiring that only those hospitals certified by the American Medical Association shall be acceptable for such internship.

The American Medical Association's Council on Medical Education and Hospitals has done much toward raising hospital standards. Its bases of standardization are good, but you will agree that it is possible for a hospital to satisfy American Medical Association requirements for intern teaching and yet fail to provide an adequate intern training program; also you will agree that the surveys made at irregular intervals are not always adequate and at best are apt to deal with forms, and cannot take into consideration the intangibles which make one hospital desirable and another undesirable. There is need for some authoritative body to which the interested unaffiliated hospital may look to provide plans for a definitive course in intern teaching.

All through our country are community hospitals in which good professional service is rendered to the patient, where there is ample material and adequate facilities for teaching the graduate student, but in which little or no effort is made, and little interest shown in such teaching by the staff or hospital management. Many of these hospitals are certified as acceptable for intern teaching. Now, how can these hospitals be induced to look upon the education of the young doctor as an obligation second only to the main objective, that of providing adequate care to the sick with which objective such teaching is closely associated?

The question might be asked as to how large *must* such a hospital be to provide satisfactory intern training, and the answer is that it is not just the *size* of the

hospital. A general hospital which is well equipped, any one-hundred-bed hospital which has an interested hospital management and staff, should be able to satisfy the requirements for intern instruction. It is true that arrangements might have to be made for some supplementary training outside the hospital, say in the basic sciences, or in certain specialized departments. Indeed, such a community hospital might well meet the needs of the first-year intern more satisfactorily than the so-called teaching hospital. He would likely be given greater responsibility. There would be less didactic teaching. He probably would see more of the *Art* of medicine, and he would certainly find that sick folks respond favorably to many different methods of treatment. But the hospital must *want* to give proper intern training, and it must be willing to support that interest in a material way. It must look upon this as a public service comparable to the service to those desirous of entering the nursing profession. The staff must be willing to devote much more time than they do now, to teaching, and the board must be willing to set aside certain funds for the accomplishment of this purpose. No large expenditure of money is required, but if interns are to be sent away for some outside training it involves a certain expense and perhaps an extra intern or two.

There will be returns to the hospital, very definite returns, for that hospital which is furnishing adequate intern training will find that the quality of staff work will be improved, the hospital patient will get better service, the reputation of the hospital will be enhanced, and there will be a general community benefit beyond all this. Many of these well-trained interns will locate in the community, and from this group will come those who, in the course of time, will take the places of the retiring members of the staff.

It is the opinion of the Michigan Conference Committee on Precicensure Education that the time has come to establish a working plan for a sound educational program for interns. This group ties up the interests of the medical schools, the hospitals, the State Medical Society, and the State Board of Registration in Medicine, and it will require the coöperation of all these various groups to make such a plan successful.

The Conference Committee believes that the responsibility for this no man's land of medical education, might well be placed upon the Postgraduate Committee of the State Society. This Committee now accepts the responsibility for the continuing education of the practicing physician. That responsibility should begin when the graduating student leaves the college door and should continue until he finally retires from practice. The Postgraduate Committee would form, after consultation with both the trained educator and the man in the field, a directional curriculum which would be adequate to satisfy the intern's educational needs. It should be sufficiently fixed that the character of the work could be graded, and elastic enough to fit the needs and character of the operating hospital. It would assume certain responsibility for the determination of hospital qualifications and for the supervision of the operation of the plan. It would work in close conjunc-

tion with the Conference Committee which is the policy-making Committee. It would also look on the Conference Committee as a liaison body with the different interested groups. Hospital staffs and hospital management will have to be educated that they may appreciate the needs for this work. This will be very definitely the function of the State Medical Society which is peculiarly fitted to bring this matter before hospital staffs and hospital boards of control, and to promote the undertaking in ways other than through the activity of its postgraduate committee.

The medical schools have a great interest in this problem and stand ready to give full coöperation. To their faculties the Postgraduate Committee will look for assistance in planning the curriculum, but the medical schools can give assistance in ways other than strictly pedagogical. Staffs of unaffiliated hospitals need the stimulus which would come from frequent contacts with the man in academic medicine.

I present to you the suggestion that the responsibility for the training of interns in the unaffiliated hospitals most logically falls into the program and objectives of the Postgraduate Committees. If, through the medium of the State Society, hospital management and hospital staffs can be brought to see the advantages of providing satisfactory intern training, and voluntarily accept the obligation for that training, much of the present-day problem of intern training and intern supply for the unaffiliated hospitals will be solved.

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Localization, an Aid in the Diagnosis of Contact Dermatitis

By George L. Waldbott, M.D.
Detroit, Michigan

GEORGE L. WALDBOTT, M.D.

M.D., University of Heidelberg, Germany, 1921. Charge of Allergy Clinics, Grace and Harper Hospitals, North End Clinic; Consulting Allergist, Children's and St. Mary's Hospitals; Fellow, American College of Physicians; Member of the two national allergy societies; Member, Michigan State Medical Society.

■ THE principal means of determining the causative agents in contact dermatitis are history and attention to the localization of the lesion. In the large number of cases in which hands and face are involved, the history is most informative; in most other cases, however, the localization is frequently so characteristic that a causative diagnosis is possible at a glance.

Sulzberger recently enumerated the favorite sites of dermatitis in relation to causes. A more detailed study of this matter, it was felt, might

be of advantage to those treating this disease. By means of questionnaires sent to allergists and dermatologists all over the United States, I hoped to make available their cumulative experience. They were asked to enter on a diagram any localization suggestive of its cause, common or unusual, which in their judgment was impressive enough to warrant recording. Emphasis was placed on the corroboration of the diagnosis of contact dermatitis by patch tests. Moreover, the correspondents were requested to enter the number of cases encountered for each area noted. This was not to be utilized for statistical purposes, but it was thought that a summation of all the data obtained would furnish information concerning the relative frequency of certain causes.

Scope of This Study

Replies were received from 106. Some of the returns contained only the marked diagrams, others presented interesting comments and even complete case reports. Due to the immense number of substances recorded, and because this study was intended not for any particular occupation or regions of the country but for dermatitis patients selected at random, the two large groups of plant and occupational dermatitis were not considered. Neither one of these groups would lend itself to this study since here hands and face are practically always primarily involved. Dermatitis from plants and pollens also occurs on neck, back, and arms as far as the dress-line and, particularly in women and children, on legs and thighs when these areas are not covered by underwear or stockings. Concerning occupational dermatitis, certain activities such as cleaning, baking, painting, cooking, gardening, chauffeuring, as well as activities pertaining to sports and hobbies were included, since these activities are met with in the routine of an average household. A third group of cases had to be excluded because no typical localization exists, namely those of medicinal dermatitis. Here the history of exposure or application serves best for the etiological analysis.

Atypical Localizations

Generalized Lesions.—Before taking up our data proper, it is necessary to state the reasons which account for the spread of dermatitis over the whole body surface. Any dermatitis, no matter where it starts, and by what substance it is caused, may, if severe enough, become general-

ized, often to such an extent that the original areas will be no more distinguishable. For instance, instillation of a few drops of a $\frac{1}{4}$ per cent zinc sulfate solution into one eye caused a dermatitis involving every part of the skin. In atopic dermatitis due to ingestion or inhalation of antigenic substances mentioned in the replies, there was a case of atopic eczema on the flexor surfaces of arms and legs, and on the face. This became generalized when contact with a dog produced a new lesion from which the eruption spread. A patch test for dog hair was positive. A few substances may, by themselves, involve the whole body surface due to the manner in which they are applied, such as bathsalts, dusting powder, and soaps. With others, dissemination arises from multiple sites to which they had been applied simultaneously, for instance with nickel, matches, perfumes, depilatories, and deodorants.

Secondary Contacts.—These affect sites to which the causative agents had not been originally applied. Some lesions were encountered with what could be termed "paradoxical localizations" since the original site showed no or only little involvement. Dermatitis due to hair cosmetics usually does not affect the scalp, but the surrounding areas, namely eyelids, face, retroauricular spaces, and neck. Dermatitis from finger nail polish is encountered more frequently on face, neck, and flexor surface of the arms than on fingers, due to secondary contact of these areas with the fingers, especially during sleep. Genitalia and peri-anal regions are also thus involved, not only from fingernail polish but also from other cosmetics and plants, such as poison ivy. In two instances these areas were named as the seat of dermatitis from ephedrin nose drops and from eye drops containing nuprocaine, secondary contact having been brought about through the fingers at the toilet. In the case of a young man a certain hair tonic produced a lesion on the lateral aspect of the elbow upon which his head rested during sleep. A rather unique case was reported of a young woman with a dermatitis on the lower lip due to nickel. This was recognized when by chance the patient was seen touching her lip with her ring, a mannerism which was an expression of her nervousness. The ring finger exhibited only insignificant lesions.

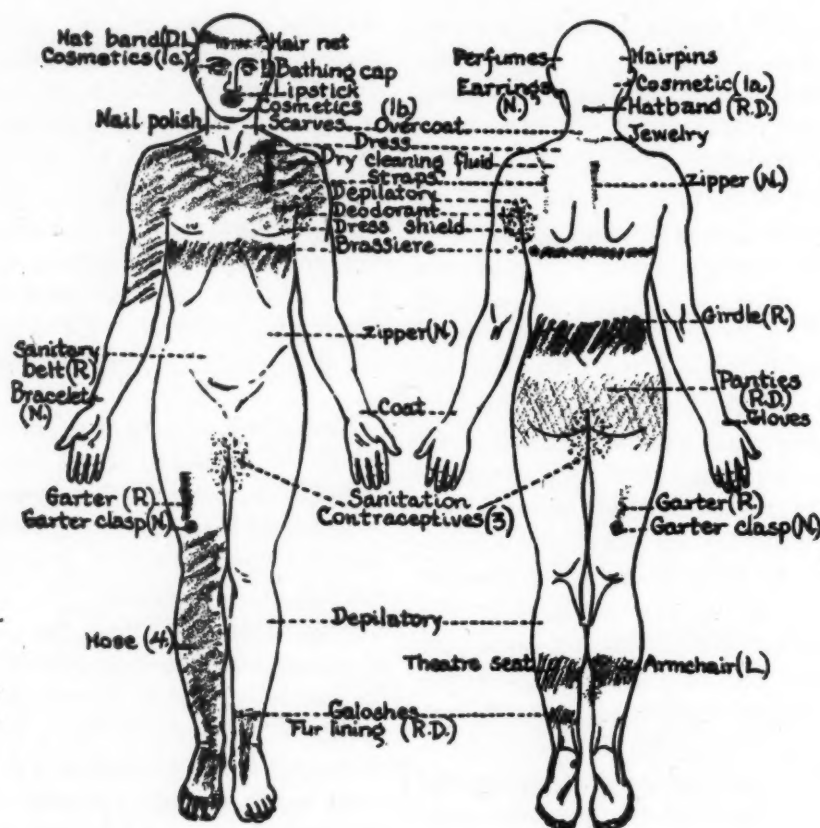
Other possibilities of secondary contact are clothes impregnated with the irritating agent, and contact with other persons to whose skin the

CONTACT DERMATITIS—WALDBOTT

substance had been applied. Dermatitis occurred on the face from pillow slip in one case and on the buttocks from underwear in another. Both had not been rinsed free of soap. A dry cleaner

edema from lipstick and mouthwash containing sodium perborate were named. In a sixty-three year-old woman, a severe keratitis was due to a hair net applied at least two inches above the

WOMAN



Cosmetics:

- (a) Hair—Wave setting fluids (Karaya gums, gum acacia, quince seed, orris root, etc.), dyes (anilin, metallic, vegetable), bleaching fluids (hydrogen dioxide), perfumes (oil of bergamot, eau de cologne, etc.), hair tonics (quinine, resorcin, salicylic acid, etc.), pomades.
- (b) Face—Powder, perfume, cold creams, cleansing and vanishing creams, rouge, powder puff (animal hair).
- (c) Eyes—Mascara, eyelash dyes, rubber in eyelash curler, any agent affecting face, head, and hands.

Garments: Wool, cotton, silk or rayon lining, fur trimming, dyes, rubber.

Sanitary Items: Chemicals in douches, jellies, pessaries, vaginal suppositories, condoms, deodorants, perfumes, sanitary napkins.

Hose: Silk, rayon, nylon, dyes, finishing fluids.

developed dermatitis from contact with a suit which contained traces of antiscabetic ointment.

Spread to Favorite Sites.—Some parts of the body, especially the eyes and the peri-anal region, are particularly disposed to dermatitis and any irritation nearby will affect them. Other parts, such as scalp and nail beds, offer greater resistance to contactants. Nearly every substance producing dermatitis of the face, scalp, and neck, more or less affects the eyes. Instances of lid

eyes. While this was the site of primary contact the principal lesions appeared in the eyes. Upon removal of the hair net the keratitis cleared up promptly.

The ankle may exhibit dermatitis associated with edema from sources in contact with the leg above. This may lead to diagnostic difficulties.

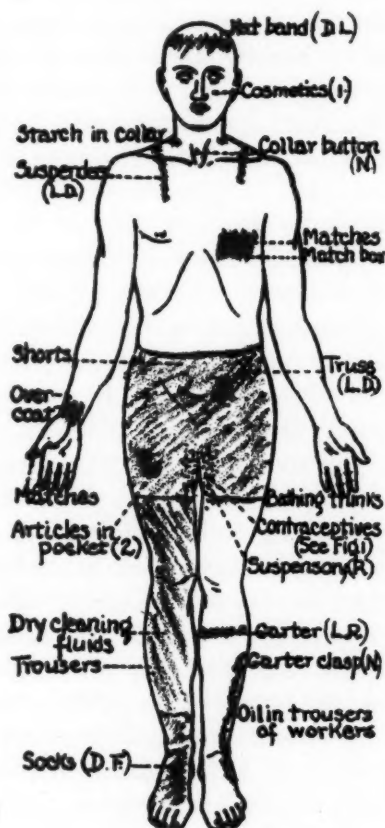
Moisture.—This may determine atypical sites of dermatitis. An eruption due to a dyed shirt

CONTACT DERMATITIS—WALDBOTT

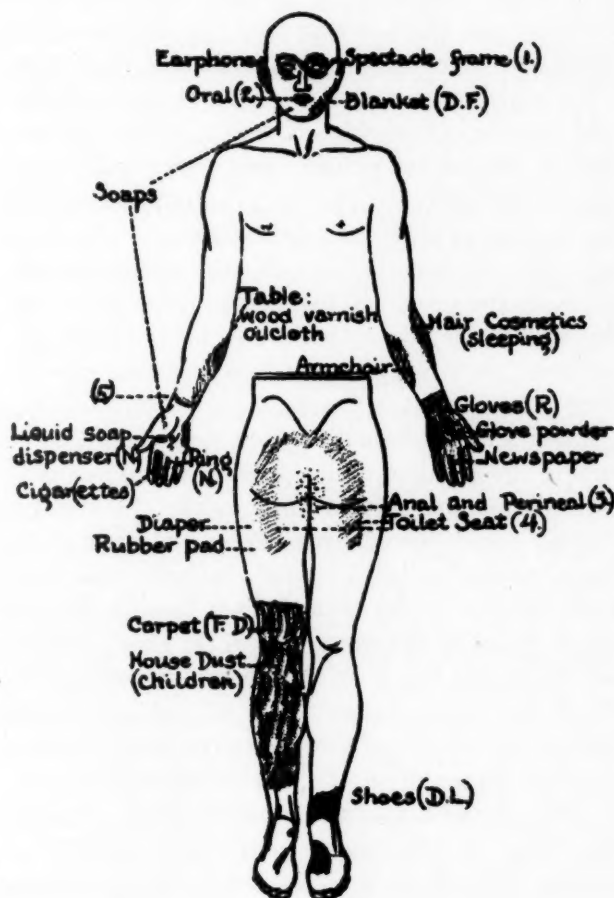
was described, affecting only a region of the belt-line where excessive perspiration took place, other places of contact being free. Dermatitis from wrist watch straps and spectacle frames

substance to which the skin is sensitive. The tips of the left fingers of an ophthalmologist with which he retracted the patient's eyelids had been affected by pantocain eyedrops, but through the

MAN



BOTH SEXES



Cosmetics: Shaving cream, shaving soap, lotions, powder, lipstick, perfumes, other cosmetics through secondary contact with female.

Articles in Trouser Pockets: Matches, match box, coins (N), key (N), cigarette lighter (N), fluid in lighter, tobacco, key case (L.N.), wallet (L).

may occur only at times of excessive perspiration. In another case, the external aspect of the thigh was the seat of a lesion due to fertilizer spilled on wet overalls, while contact with the dry material was innocuous. A fur dermatitis spread through the middle of the chest down as far as the umbilical region when the fur became drenched by rain. A band-like or linear appearance of dermatitis in vertical or near vertical direction is always suggestive of a fluid agent dripping down the skin.

Flare-up of Previous Lesions.—The flare-up of a former lesion is not uncommon when contact elsewhere takes place with the same or another

Spectacle Frames: (N), chromium, plastics, tortoise shell, horn, cleansing fluids for glasses.

Oral and Facial: Chewing gum, tooth pastes, tooth powders, mouth wash (sodium perborate), adhesive powder of dentures (karaya gum), seeds from apples, oranges, cigarette holders, mouthpieces of musical instruments, dyes in foodstuffs, drugs.

Sanitary Items: (See above.)

Toilet Seats: Varnish dyes, plastics, disinfectants (lysol), fabric of cover.

Watch: Watch strap (leather dyes, elastic glass). (R—Rubber, L—Leather, N—Nickel, F—Fabric, D—Dye).

use of rubber gloves these areas had completely healed. Eight months later these sites became reactivated simultaneously with a marked dermatitis on his left eye, when he applied the same drops to his own eye, even though his fingers were completely protected by rubber gloves. This mode of origin is demonstrated when a distant former lesion recurs as the result of a strongly positive patch test.

Typical Localizations

The typical sites enumerated in the replies to the questionnaire will be discussed in three groups, those encountered in women (Fig. 1), in men (Fig. 2), and those common to both sexes (Fig. 3).

Woman.—Because of greater elaboration in clothing and more widespread use of cosmetics, woman is more exposed to dermatitis than man. This is apparent in the diagram. In clothes, fabrics may be responsible, as well as dyes. Lesions due to clothes are usually well defined. Dresses affect those parts of the body surface which are not covered by undergarments and hose. The characteristic V-shape or semi-circular outline of the dress on the neck, and the sharp limitation on the top line of the slip or brassiere, facilitate the diagnosis. In dress dermatitis, the domes of the arm pits are not affected, a fact which distinguishes a dress dermatitis from one caused by a rubber dress shield or by deodorants and depilatories which are applied to the axilla. Dermatitis due to a coat (wool, fur, dyes, and linings of linen, rayon, or silk) usually affects neck and arms up to a rather well defined line of demarcation distal to the dress sleeve. If short sleeves are worn, this line is on the upper arm, otherwise above the wrist. Lesions due to undergarments assume the pattern of the respective pieces. From shoulder straps or sanitary belts rubber dermatitis may arise on areas covered by them. Safety pins used for their support may induce nickel dermatitis. Equally well defined are lesions caused by the zipper of the dress or girdle, or by nickel hose supporters, etc.

The neck is subject to irritation from many causes. Friction with the edges of dresses and coats, contact with furs, scarfs, and jewelry produce lesions of different designs. One case was reported in which a curl, stiffened by hair-setting fluid, and another in which the red label inside of the hatband, produced an isolated patch of dermatitis. Dermatitis from face, mouth, and scalp is often transmitted to the neck. The postauricular spaces are the favorite seat of dermatitis from perfumes, hairpins (nickel and lacquer) and celluloid hair clips, the areas below the ear from earrings. Blepharitis and conjunctivitis with more or less pronounced lid edema are usually due to eyebrow dyes, face powders, creams, the rubber of lash curlers, as well as to contactants applied to practically any other part

of the head and neck. On the wrist, lesions may arise from bracelets. In the palm of the left hand, nickel, celluloid, or plastics of a powder box or the handle of a hand mirror, may cause lesions, on the right hand a comb or brush.

The anal, vaginal, and perineal regions are susceptible to irritation from antiseptics, contraceptives (jellies, douches), condoms, pessaries, deodorants, and constituents of sanitary pads. Dermatitis due to hosiery, their fabrics, dyes, and finishing products (resins) is limited to the areas covered. A case of nickel dermatitis on the dorsum of the foot was found to be due to trimmings on the shoe.

Man.—In man, lesions due to clothes and cosmetics are less important than in woman. Fabrics and dyes of trousers may affect the legs from the lower edge of the underwear to the ankles. The lower border of this zone usually coincides with the sock line. Dry cleaning fluids applied to trousers involve the same areas; their fumes may also cause irritation on the face. The fabric and dye of an overcoat and its lining are favored causes for dermatitis on the base of the thumb, on the wrist, and on the neck. On the hips, corresponding lesions may occur from shorts and bathing trunks. Shaving soaps and after-shaving lotions, creams and styptics may produce dermatitis on the face. Cosmetics, especially lipstick, applied to the female face, have induced dermatitis in man. Lesions on the legs covering areas corresponding to the pockets are relatively common in man. Articles such as coins, keys, tobacco, matches, match boxes, cigarette lighters, fluid in these lighters are responsible. Match dermatitis is also encountered on an area of the chest corresponding to the shirt pocket and another one on the fingers if matches are lighted with the finger nails. Penis and anterior part of scrotum are subject to the same irritants as the corresponding areas in woman, either through primary application or through secondary contact during cohabitation. The lateral aspect of the lower leg may be the seat of dermatitis from oil and gasoline dripping down into this region.

Both sexes.—Among the causes common to both sexes (Fig. 3) are spectacle frames. This dermatitis extends from the bridge of the nose, about the eyes into the postauricular portions or the head. The face is primarily subject to dermatitis from plants, insect sprays (pyrethrum),

and volatile oils. Kapok and feathers in pillows and mattress were found to affect areas about the ear, one side usually exhibiting more extensive lesions than the other. Similarly, dermatitis from the wool, cotton, or dye of a blanket covering the face at night may be unilateral. Plastics in telephone receiver and earphones often produce a clear impression on the ears. The seeds of apples, oranges, and grapefruits, and possibly other foods which contain oils, may give rise to cheilitis and dermatitis about the mouth and chin. Other sources named at this site were ingredients of dentifrices, mouth washes, chewing gum, adhesive powders for dentures, and the synthetic materials from which dentures are made. Cigarette holders and pipes may affect both the mouth and the respective fingers. Practically any constituent of eye and nose drops may be the source of lesions about eyes and nose which often extend down in a more or less vertical streak as far as the chest. These may involve the whole face if the medicine was applied while the face was wet.

Typical localizations from which a diagnosis could be readily made were noted on the internal flexor surface of the forearm in contact with an oilcloth table cover or with various kinds of wood and varnish while resting the arms on the table. Also easily identified were lesions on the wrist of hand and forearm from varnish, leather, mohair, or upholstering of an armchair. The outline of bathing suits is occasionally seen not only because of their dyes and fabrics (rubber!), but also because they form a protective border against sun tan oil applied to the skin. On the hands, the interdigital webs remain free in dermatitis from rubber gloves since they have no intimate contact with these areas, while lesions may be caused here by soaps and the lining (animal hair) and dyes of cloth gloves. The webs of the finger are subject to fungus infections, an important point in differential diagnosis. Lesions on the wrist are frequently caused by wrist watches and watch straps.

Dermatitis from toilet seats was mentioned frequently in this survey. Located on the buttocks it is due to either varnish, paint, celluloid, plastics, and occasionally to disinfectants (lysol). Since plant oils, especially those of poison ivy, have been used orally for treatment of plant dermatitis, pruritus ani has been caused by their elimination in the feces. A case of contact dermatitis from oil of walnut in the anal region, caused in a similar manner, was recorded. Con-

trol tests with oils from other nuts produced no ill effect. In lesions in the peri-anal regions, the hard rubber nozzles of enemas, toilet paper, cathartics, and suppositories through their content of cocoa butter and various drugs should be considered.

On the feet, a differential diagnosis between ringworm infections and contact dermatitis from shoes should take into consideration that in the latter, the areas between the toes are not affected; instead, lesions develop where friction or tight contact with the shoe takes place (perspiration!) on the tops of the toes, especially of the first one, on the dorsal aspect of the foot, on the instep and heel. Leather, leather dyes, fabrics and dyes of lining and trimmings, or shoe polish and cleaning fluids may be responsible.

Domestic Occupations

Among the innumerable sources of occupational dermatitis named in the replies to the questionnaire, only those pertaining to home occupations are of interest here. A complete description for each localization is impossible. They are almost always on the exposed parts of the body, particularly the hands and face.

The activities of a housewife lead to eruptions on fingers and hands caused most frequently by soap. Other sources are scouring powder, turpentine, gasoline, naphtha, moth balls, and silver polish. The rubber handle of a vacuum cleaner caused a typical pattern on the right hand and the nickel button of a soap dish another one which was limited to a dime sized area in the palm. From handling food, dermatitis due to celery, carrots, oranges, and lemon rind were named. In citrous fruits the oils of the rinds, as well as the dyes used to give them "natural" color, may be responsible for lesions. A case of marked dermatitis in the palm of the right hand from grating horseradish was encountered. Eating grapefruit produced a lesion on the left hand with which the fruit was held. Metal, paint, and wood of a knife handle, the metal in faucets and door knobs were named as irritants. Sewing and knitting, contact with scissors, thimble, needles, and yarn, may induce well defined designs on the hand. A case of nickel dermatitis on the hand was due to contact with a cocktail shaker. Among the flowers named as causes of lesions, chrysanthemums, primrose, tulips, bachelor-buttons, hollyhocks, appeared most frequently in the re-

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Michigan State Medical Society

Roster 1942

[An asterisk (*) preceding a name indicates active military service]

Allegan County

Beckett, M. B. Allegan
Benning, H. M. Allegan
Brown, Lewis Freeman Otsego
Brunson, Eugene T. Ganges
Clough, William J. Saugatuck
Dickinson, C. A. Wayland
Flinn, C. C. Allegan
Hamelink, M. H. Hamilton

Hudnutt, Orrin Dean. Plainwell
Johnson, E. B. Allegan
Johnson, H. H. Martin
Mahan, James E. Allegan
Medill, W. C. Plainwell
Osmun, E. D. Allegan
Ramsey, Gladwin E. Plainwell
Rigterink, George H. Hamilton

Roberts, M. S. Fennville
Shepard, Lyle Otsego
*Stuch, Howard T. Camp Polk, La.
Stuck, Olin H. Otsego
TenPas, H. W. Holland
Vaughan, W. R. Plainwell
Van Der Kolk, Bert. Hopkins
Walker, Robert J. Saugatuck

Alpena-Alcona-Presque-Isle Counties

Bunting, J. W. Alpena
Burkholder, H. J. Alpena
Carpenter, Clarence A. Onaway
Constantine, A. Harrisville
Foley, E. L. Alpena
Hier, Edward A. Alpena
Kessler, Harold Alpena

Lister, George F. Hillman
Moffat, Gordon B. Rogers City
Monroe, Neil C. Rogers City
Nesbitt, Wm. E. Alpena
Newton, W. B. Alpena
O'Donnell, F. J. Alpena
Parmenter, E. S. Alpena

Purdy, John W. Lachine
*Ramsey, J. A. Fort Custer
Rutledge, S. H. Rogers City
Rutledge, S. H., Jr. Rogers City
Secrist, Leo F. Alpena
Wienczewski, Theophile Alpena

Barry County

Altland, J. K. Hastings
Farwell, Byron E. Delton
Finnie, R. G. Hastings
Fisher, Gordon F. Hastings

Gwinn, A. B. Hastings
Harkness, Robert B. Hastings
Keller, Guy C. Hastings
Lathrop, Clarence P. Hastings

Lofdahl, Stewart Nashville
Lund, Chester A. E. Middleville
*McIntyre, K. S. Pensacola, Fla.
Morris, Edgar T. Nashville
Wedel, Herbert S. Hastings

Bay-Arenac-Iosco Counties

Alcorn, Kent Bay City
Allen, A. D. Bay City
Andrews, F. T. Bay City
Ash, C. W. Bay City
Asline, J. N. Essexville
Austin, Justis Tawas City
Baker, Charles H. Bay City
Ballard, Sylvester L. Bay City
Ballard, W. R. Bay City
Boulton, A. O. Gladwin
Brown, G. M. Bay City
Cobb, Thomas H. Bay City
Connelly, C. J. Bay City
Criswell, R. H. Bay City
Dardas, M. J. Bay City
DeWaele, Paul L. Bay City
Drummond, Fred Kawkawlin
Dumond, V. H. Bay City
Ely, Nina Bay City
Foster, L. Fernald. Bay City
Freel, John A. Bay City
Gamble, W. G., Jr. Bay City
Gronemeyer, W. H. Bay City
Groomes, Charles Bay City
Grosjean, J. C. Bay City
Gunn, Robert Standish

*Hagelshaw, G. L. Denver, Colo.
Hall, R. F. Bay City
Hasty, Earl Whittemore
Healy, Gaillard H. Bay City
Hess, C. L. Bay City
Heuser, Harold H. Bay City
Horowitz, S. Franklin. Bay City
Huckins, E. S. Bay City
Hughes, E. C. Bay City
Husted, F. Pitkin. Bay City
Jacob, A. H. Bay City
Jens, Otto Essexville
Jones, Jerry M. Bay City
Keho, John Bay City
Kerr, William Bay City
Kessler, Mana Bay City
Kessler, S. Bay City
Knobloch, Howard Bay City
Lane, Milton Bay City
Lerner, David Au Gres
McDonnell, Walter R. Pinconning
McEwan, J. H. Bay City
MacPhail, Joseph Bay City
Medvesky, M. J. Bay City
Miller, Edwin C. Bay City
Mitton, O. W. East Tawas

Moore, George W. Bay City
Moore, Neal R. Bay City
Mosier, D. J. Bay City
Perkins, Roy C. Bay City
*Reutter, C. W. Mt. Clemens
Scrafford, Royston Earl. Bay City
Shafer, H. C. Bay City
Sherman, R. N. Bay City
Slattery, M. R. Bay City
Staley, Hugh Omer
Stinson, W. S. Bay City
Stuart, Kenneth. Bay City
Swantek, Charles M. Bay City
*Tarter, Clyde S. Alexandria, La.
*Timreck, Harold A. Douglas, Ga.
Tupper, Virgil L. Bay City
Urmston, Paul R. Bay City
Warren, E. C. Bay City
Wilcox, J. W. Bay City
Wilson, Thomas G. Bay City
Wittwer, E. A. Bay City
Woodburne, H. L. Bay City
Zaremba, Aloysius J. Bay City
Ziliak, A. L. Bay City

Berrien County

Allen, J. U. Benton Harbor
Allen, Robert C. St. Joseph
*Bartlett, W. M. Camp Gordon, Ga.
Belsley, Frank K. Benton Harbor
Bliesmer, A. F. St. Joseph
Brown, F. W. Watervleit
Brown, G. W. Buchanan
Cawthorne, H. J. Benton Harbor
Conybeare, R. C. Benton Harbor
*Crowell, Richard Dearborn
Dunnington, R. N. Benton Harbor
Eidson, Hazel Berrien Springs
*Ellet, Wm. C. San Francisco, Calif.
Emery, Clayton St. Joseph
Faber, Michael Benton Harbor
Friedman, Morris New Buffalo
Gillette, Clarence H. Niles
Gunn, J. W. Watervleit

Hanna, P. G. St. Joseph
Harper, Ina Benton Harbor
Harrison, L. L. Niles
Hart, Russell T. Niles
Helkie, William L. Three Oaks
Henderson, Fred Niles
Henderson, Robert Niles
Herring, Nathaniel A. Niles
Hershey, Noel J. Niles
Howard, R. B. Benton Harbor
Huff, H. D. Niles
King, Frank, Jr. Benton Harbor
King, Frank A. Benton Harbor
Kok, Harry Benton Harbor
Littlejohn, William Bridgman
McDermott, J. J. St. Joseph
Merritt, Charles W. St. Joseph

Miller, E. A. Berrien Springs
Mitchell, Carl A. Benton Harbor
Moore, T. Scott Niles
Ozeran, Charles J. Benton Harbor
Pritchard, H. M. Niles
*Reagan, Robert E. Great Lakes, Ill.
Rein, Gerald Benton Harbor
Richmond, D. M. St. Joseph
Rosenberry, A. A. Benton Harbor
Ruth, J. G. Benton Harbor
Schairer, Wm. W. Coloma
Smith, W. A. Berrien Springs
*Sowers, Bouton F. Benton Harbor
Strayer, J. C. Buchanan
Thorup, Don W. Benton Harbor
Waterson, R. S. Niles
Westervelt, H. O. Benton Harbor
Yeomans, T. G. St. Joseph

ROSTER

Branch County

Andrews, Frank A.....Coldwater
Bailey, J. E.....Bronson
Beck, Perry C.....Bronson
Bien, W. J.....Coldwater
*Chipman, E. M.....Quincy
Calver, Bert W.....Coldwater
Far, S. E.....Quincy

Fraser, R. J.....Coldwater
Joerin, William.....Coldwater
McLain, R. W.....Jackson
Meier, H. J.....Coldwater
Mooi, H. R.....Union City
*Olmsted, Kenneth L.....
.....Camp Robinson, Ark.
Phillips, F. L.....Bronson

Schneider, H. A.....Coldwater
Schultz, Samuel.....Coldwater
*Scovill, H. A.....Fort Custer
Smith, Lloyd.....Coldwater
Thomas, J. A.....Coldwater
Wade, R. L.....Coldwater
Walton, N. J.....Quincy
Weidner, H. R.....Coldwater

Calhoun County

Abbott, Nelson.....Homer
Amos, Norman H.....Battle Creek
Baribeau, R. H.....Battle Creek
Barnhart, Samuel E.....Battle Creek
Becker, Harry F.....Battle Creek
Beuker, Herman.....Marshall
Braham, W. G.....Battle Creek
Brainard, C. W.....Battle Creek
Campbell, Alice.....Albion
Campbell, R. J.....Battle Creek
*Capron, Manley J.....
.....Parris Island, S. C.
Church, Starr K.....Marshall
*Chynoweth, W. R.....
.....Fort Sam Houston, Texas
Cooper, J. E.....Battle Creek
Curless, Grant R.....Battle Creek
Curry, Robert K.....Homer
Derickson, E. C.....Burlington
Dickson, A. R.....Battle Creek
Dodge, Warren M., Jr.....Battle Creek
Elliott, James A.....Grand Rapids
Fahndrich, C. G.....Battle Creek
Fairbanks, Stephen.....Albion
*Finch, D. L.....Portsmouth, Va.
*Forsyth, J. F.....Kelly Field, Texas
Fraser, R. H.....Battle Creek
Funk, L. D.....Athens
Gething, Joseph W.....Battle Creek
Giddings, A. M.....Battle Creek
Gilfillan, Margery J.....Battle Creek
Godfrey, Willoughby L.....Battle Creek
Gorsline, Clarence S.....Battle Creek
Graubner, F. L.....Marshall
Hafford, Alpheus T.....Albion
*Hale, Claude E.....
.....Fort Sam Houston, Tex.
*Hansen, Harvey C.....
.....Fort Benning, Ga.

Haughey, Wilfrid.....Battle Creek
Heald, C. W.....Battle Creek
Henderson, Louis M.....Albion
Henderson, Phillip.....Albion
Herzer, Henry A.....Albion
Holes, Jesse J.....Battle Creek
Holtom, B. G.....Battle Creek
Howard, W. L.....Battle Creek
Hubly, James W.....Battle Creek
Humphrey, Archie Edward.....Marshall
*Humphrey, Arthur A.....
.....Parris Island, S. C.
Jespersion, Lydia.....Battle Creek
Jones, T. K.....Marshall
Keagle, Leland R.....Battle Creek
Keeler, K. B.....Albion
Kellogg, Carrie Staines.....Battle Creek
Kellogg, John H.....Battle Creek
Kingsley, Paul C.....Battle Creek
Kinde, M. R.....Battle Creek
Kolvoord, Theo.....Battle Creek
LaFrance, N. Francis.....Battle Creek
Landon, Charles C.....Battle Creek
*Levy, Joseph.....Fort Mead, Md.
Lewis, W. B.....Battle Creek
Lowe, H. M.....Battle Creek
*Lowe, Kenneth.....Parris Island, S. C.
Lowe, Stanley T.....Battle Creek
MacGregor, Archibald E.....Battle Creek
McNair, L. N.....Albion
Meister, F. O.....Battle Creek
Melges, F. J.....Battle Creek
Mercer, C. M.....Battle Creek
Morrison, D. B.....Tekonsha
Mortensen, M. A.....Battle Creek
Moshier, Bertha.....Battle Creek
*Mullenmeister, H. F.....
Mustard, Russell.....Battle Creek

Norton, Richard C.....Battle Creek
Patterson, Adonis.....Harrison
Putman, W. N.....Battle Creek
Robins, Hugh.....Marshall
Rorick, Wilma Weeks.....Battle Creek
Rosenfeld, Joseph E.....Battle Creek
*Royer, C. W.....
.....Fort Sam Houston, Tex.
Selmon, Bertha L.....Battle Creek
Sharp, A. D.....Albion
Shipp, Leland P.....Battle Creek
Siblsky, A. Clark.....Battle Creek
Simpson, Robert S.....Battle Creek
*Slagle, Geo. W.....Parris Island, S. C.
Sleight, James D.....Battle Creek
Sleight, Raymond D.....Battle Creek
*Smith, T. C.....Canadian Army
Smith, Wm. Marshall.....Battle Creek
Stadle, Wendall.....Battle Creek
Stiefel, Richard.....Battle Creek
Tannenholz, Harold S.....Battle Creek
Taylor, Clifford B.....Albion
Thompson, Oliver E.....Battle Creek
*Toms, Roland E.....Fort Custer
Upson, W. O.....Battle Creek
Van Camp, E.....Battle Creek
Vandervoort, Wm.....Battle Creek
Verity, Lloyd E.....Battle Creek
Vollmer, Maud J.....Moline, Ill.
Walters, F. R.....Battle Creek
Walters, Royal W.....Battle Creek
Watson, Bernard.....Battle Creek
Wencke, Carl G.....Battle Creek
Winslow, Rollin C.....Battle Creek
Winslow, Sherwood B.....Battle Creek
Zindler, Geo. A.....Battle Creek
*Zinn, Karl.....Rockford, Ill.

Cass County

Adams, U. M.....Marcellus
Clary, R. I.....Dowagiac
Cunningham, E. M.....Cassopolis
Hickman, John.....Dowagiac

Kelsey, James H.....Cassopolis
Loupee, George.....Dowagiac
Loupee, S. L.....Dowagiac
Lyman, W. R.....Dowagiac

Newsome, Otis.....Cassopolis
Pierce, Kenneth C.....Dowagiac
Rice, Franklin.....Cassopolis
Switzer, Lars W.....Flint
Zwergel, E. H.....Cassopolis

Chippewa-Mackinac Counties

Bandy, Festus Cecil.....Sault Ste. Marie
*Birch, William.....Fort Custer
Blain, James G.....Sault Ste. Marie
Blair, H. M.....Sault Ste. Marie
Conrad, George A.....Sault Ste. Marie
Cornell, Eliphalet A.....Sault Ste. Marie
Cowan, Donald.....Sault Ste. Marie
Gilfillan, E. O.....Sault Ste. Marie

*Hakala, L. J.....Sault Ste. Marie
Littlejohn, David.....Sault Ste. Marie
McBryde, Lyman M.....Sault Ste. Marie
Mertaugh, W. F.....Sault Ste. Marie
Moloney, F. J.....Sault Ste. Marie
Montgomery, B. T.....Sault Ste. Marie
Rhind, E. S.....St. Ignace

Scott, Dwight F.....Sault Ste. Marie
Vegors, Stanley H.....Sault Ste. Marie
Wallen, LeRoy J.....Sault Ste. Marie
Webster, E. H.....Sault Ste. Marie
Willison, C.....Sault Ste. Marie
Wood, Neal.....Mackinac Island
Yale, I. V.....Sault Ste. Marie

Clinton County

Bennett, George W.....Elsie
Elliott, Bruce R.....Ovid
Foo, Charles T.....St. Johns
Frace, Guy H.....St. Johns

Hart, Dean W.....St. Johns
Henthorn, A. C.....St. Johns
Ho, Thomas Y.....St. Johns
Luton, F. E.....St. Johns

McWilliams, W. B.....Maple Rapids
Russell, Sherwood R.....St. Johns
Wahl, George Edward.....St. Johns

*Delta-Schoolcraft Counties

Bachus, Arthur.....Powers
Benson, G. W.....Escanaba
Boyce, D. H.....Escanaba
Carlton, A. J.....Escanaba
Chenoweth, Nancy R.....Escanaba
Clausen, C. H.....Gladstone
Frenn, N. J.....Bark River

Fyvie, James.....Manistique
Groos, Harold Quinten.....Escanaba
Groos, Louis P.....Escanaba
Hult, Otto S.....Gladstone
Kitchen, A. S.....Escanaba
Lemire, William A.....Escanaba
Lindquist, N. L.....Manistique

Long, Harry W.....Escanaba
Miller, Albert H.....Gladstone
Mitchell, James D.....Gladstone
Moll, G. W.....Escanaba
Shaw, George A.....Manistique
Tonney, Fred O.....Escanaba
Walch, J. J.....Escanaba

ROSTER

Dickinson-Iron Counties

Addison, E. R.....Crystal Falls
Alexander, W. H.....Iron Mountain
Andersen, E. B.....Iron Mountain
Boyce, George H.....Iron Mountain
Browning, James L.....Iron Mountain
Fiedling, William.....Norway
Fredrickson, Geron.....Iron Mountain

*Gloss, Kenneth E...San Angelo, Tex.
*Haight, Harry H...San Diego, Calif.
Hamlin, Lloyd E...St. Louis, Missouri
Hayes, R. E.....Sagola
Huron, W. H.....Iron Mountain
Irvine, L. E.....Iron River
Kofmehl, William J.....Stambaugh

Levine, D. A.....Iron River
McEachran, Hugh D...Iron Mountain
Menzies, Clifford.....Iron Mountain
Retallack, R. C.....Iron River
Smith, Donald R.....Iron Mountain
White, Robert E.....Stambaugh
Witkow, Alexander.....Iron Mountain

Eaton County

Anderson, K. A.....Austin, Texas
Arner, Fred Levi.....Bellvue
Brown, B. Philip.....Charlotte
Burdick, Austin F.....Grand Ledge
Carothers, Daniel J.....Charlotte
Engle, Paul.....Olivet
Goff, S. B.....Eaton Rapids
Hannah, H. W.....Charlotte
Hargrave, Don V.....Eaton Rapids

Huber, Charles D.....Charlotte
Huyck, Stanhope Pier.....Sunfield
Imthun, Edgar F.....Grand Ledge
McLaughlin, C. L. D...Vermontville
Moyer, H. A.....Charlotte
Myers, Albert W.....Pottsville
Paine, E. Madison, jr...Grand Ledge
Paine, E. M.....Grand Ledge
Quick, Phil H.....Olivet

Rickerd, Vinton J.....Charlotte
Sassaman, F. W.....Charlotte
Sevener, C. J.....Charlotte
Sevener, Lester G.....Charlotte
Sheets, A. G.....Eaton Rapids
Stanka, Andrew George...Grand Ledge
Stimson, C. A.....Eaton Rapids
Stucky, George.....Charlotte
Van Ark, Bert.....Eaton Rapids
Wilensky, Thomas.....New York City

Genesee County

Adams, Chester.....Grand Blanc
Andrews, N. A. C.....Flushing
Anthony, George E.....Flint

Backus, G. R.....Flint
Bahlman, Gordon H.....Flint
Baird, James.....Flint
Baker, Henry K.....Flint
Bald, Frederick W.....Flint
Barbour, Fleming A.....Flint
Baske, Franklin W.....Flint
Bateman, L. G.....Flint
Benson, J. C.....Flint
Bernstein, Eli N.....Flint
Biggar, H. R.....Flint
Bishop, D. L.....Flint
Blakeley, Arthur C.....Flint
Bogart, Leon M.....Flint
Boles, William P.....Flint
Bonathan, A. T.....Flint
Bradley, Robert.....Flint
Brain, R. Gordon.....Flint
Branch, Hira E.....Flint
Brasie, D. R.....Flint
Briggs, Guy D.....Flint
Bruce, Wm. W.....Swartz Creek
Burkett, L. V.....Flint
Burnell, Max.....Flint
Burnside, Howard B.....Flint
Chambers, Myrton S.....Flint
Chandler, M. E.....Flint
Charters, John H.....Fenton
Childs, Lloyd H.....Flint
Clark, Clifford P.....Flint
Cohen, Evelyn.....Flint
Colwell, C. W.....Flint
Connell, J. T.....Flint
Conover, G. V.....Flint
Conover, T. S.....Flint
Cook, Henry.....Flint
Covert, F. L.....Gaines
Crane, Harley.....Flint
Credille, B. A.....Flint
Curry, George.....Flint
Curtin, J. H.....Flint
Del Zingro, N.....Davison
Dimond, E. G.....Flint
Edgerton, A. C.....Clio
Eickhorst, Thomas.....Flint
Elliott, H. B.....Flint
Farhat, M. M.....Flint
Finkelstein, T.....Flint
Flynn, S. T.....Flint
Foley, S. L.....Flint
Fuller, H. T.....Mt. Morris
Gelenger, S. M.....Flint
Gibson, Edward D.....Flint

Gleason, N. Arthur.....Flint
Goering, George R.....Flint
Golden, H. Maxwell.....Flint
Goodfellow, B.....Flint
Gorne, S. S.....Flint
Graham, Hugh W.....Mt. Morris
Gray, Edwin F.....Flint
Grover, Harold F.....Flint
Guile, Earle.....Flint
Guile, G. S.....Flint
Gundry, G. L.....Grand Blanc
Gutow, Julius.....Flint
*Hague, R. F.....Dearborn, Mich.
Halligan, Raymond S.....Flint
Hamady, Ruth B.....Flint
Handy, John W.....Flint
Harper, Homer.....Flint
Harrison, L. D.....Flint
Hays, George A.....Flint
Hiscock, H. H.....Flint
Hufton, Willard L.....Flint
Houston, James.....Swartz Creek
Hubbard, William B.....Flint
Jefferson, Harry A.....Flint
Kaleta, Edward.....Flint
Kaufman, Lewis D.....Flint
Kirk, A. Dale.....Flint
Kretchmar, A. H.....Flint
Kurtz, John J.....Flint
Lambert, L. A.....Flint
Lavin, Kathryn R.....Flint
Leach, J. L.....Flint
Livesay, Jackson E.....Flint
Logan, G. W.....Flushing
MacDuff, R. B.....Flint
MacGregor, D. M.....Flint
MacGregor, J. C.....Flint
MacGregor, R. W.....Flint
Macksood, Joseph.....Flint
Marsh, H. L.....Flint
Marshall, William H.....Flint
Mason, Elta.....Flint
Matthewson, Guy C.....Flint
McArthur, A.....Flint
McArthur, R. H.....Clio
McGarry, Burton G.....Fenton
McGarry, R. A.....Flint
McKenna, O. W.....Flint
Miller, Edwin E.....Flint
Miltick, Anthony J.....Flint
Miner, Frederick B.....Flint
Moore, John W.....Flint
Moore, Kenneth B.....Flint
Morriss, Ray S.....Flint
Morrisset, V. H.....Flint
Moiser, Edward C.....Otisville
Olson, James A.....Flint

O'Neil, C. H.....Deckerville
Orr, J. Walter.....Flint
Pfeifer, Archibald C.....Mt. Morris
Phillips, R. L.....Flint
Pratz, O. C.....Flint
Preston, Otto J.....Flint
Probert, C. C.....Flint
Randall, H. E.....Flint
Reeder, Frank E.....Flint
Reid, Wells C.....Goodrich
Rice, Ephraim D.....Flint
Richeson, V.....Flint
Rieth, George F.....Flint
Roberts, Floyd D.....Flint
Rowley, James A.....Flint
Rundles, Walter Z.....Flint
Ryneanson, Wm. J.....Fenton
Sandy, K. R.....Flint
Scavarda, Chas. J.....Flint
Schiff, B. A.....Flint
Scott, R. D.....Flint
Shantz, L. O.....Flint
Shipman, Charles W.....Flint
Sleeman, Blythe R.....Linden
Sheeran, Daniel H.....Flint
Smith, E. C.....Flint
Smith, Maurice J.....Flint
Sniderman, Benjamin.....Flint
Snyder, Charles E.....Swartz Creek
Sorkin, S. S.....Flint
Steinman, F. H.....Flint
Stephenson, Robert A.....Flint
Stevenson, W. W.....Flint
Streat, R. W.....Flint
Stroup, Clayton W.....Flint
Sutton, George R.....Flint
Sutton, M. R.....Flint
Thompson, Alvin.....Flint
Treat, D. L.....Flint
Van Gorder, George F.....Davison
Vary, Edwin P.....Flint
Walcott, C. G.....Fenton
Ward, Nell.....Flint
Ware, Frank A.....Clayton, Mo.
Wark, D. R.....Flint
White, Carl H.....Fenton
White, Herbert.....Flint
White, Perry.....Clio
Williams, W. S.....Flint
Willoughby, G. L.....Flint
Willoughby, L. L.....Flint
Wills, T. N.....Flint
Winchester, Walter H.....Flint
Woughter, Harold W.....Flint
Wright, D. R.....Flint
Wright, G. R.....Montrose
Wyman, J. S.....Flint

Gogebic County

Anderson, Charles F.....Bessemer
Crosby, Theodore S.....Ironwood
Eisele, D. C.....Ironwood
Gertz, M. A.....Ironwood
Gorrilla, A. C.....Ironwood
Gullickson, Miles.....Ironwood
Holm, Henry.....Ironwood
Lieberthal, M. J.....Ironwood

Lieberthal, Paul.....Ironwood
Maccani, W. L.....Ironwood
Maloney, F. G. H.....Ironwood
Nezowski, H. T.....Ramsey
O'Brien, A. J.....Ironwood
Pierpont, D. C.....Ironwood
Pinkerton, H. A.....Ironwood
Rees, Thomas R.....Ironwood

Reid, John D.....Ironwood
Reynolds, F. L.....Ironwood
Stevens, Charles E.....Bessemer
Tew, William Ellwood.....Bessemer
Tressel, H. A.....Wakefield
Urquhart, C. C.....Ironwood
Wacek, W. H.....Ironwood

ROSTER

Grand Traverse-Leelanau-Benzie Counties

Bauman, Milton Traverse City
 Bolan, Ellis J. Suttons Bay
 Brownson, Jay J. Kingsley
 Brownson, Kneale Traverse City
 Bushong, B. B. Traverse City
 Covey, E. L. Honor
 Ellis, Claude I. Suttons Bay
 Gauntlett, J. W. Traverse City
 Grawn, F. A. Traverse City
 *Hamilton, Earl E. Overseas
 Holliday, George A. Traverse City
 Huene, Nevin Traverse City
 Huston, Russell R. Elk Rapids
 Jerome, Jerome T. Traverse City

Kitson, V. H. Elk Rapids
 *Knapp, Joseph L. Camp Croft, S. C.
 Kyselka, H. B. Traverse City
 Lemen, Charles E. Traverse City
 Lentz, R. J. Traverse City
 Lossman, R. T. Traverse City
 Murphy, Fred E. Cedar
 Nickels, M. M. Traverse City
 Osterlin, Mark Traverse City
 Rinear, Edwin Traverse City
 Sheets, R. Philip Traverse City
 Sladek, E. F. Traverse City
 Stone, Fordyce, H. Beulah

Swanton, L. Traverse City
 Swartz, F. G. Traverse City
 Thacker, Fred R. Frankfort
 Thirby, E. L. Traverse City
 Thompson, T. W. Traverse City
 Trautman, Frederick D. Frankfort
 Van Leuven, B. H. Traverse City
 Way, Lewis R. Traverse City
 Weitz, Harry Traverse City
 Wilcox, Paul Traverse City
 Willoughby, Frances Lois. Traverse City
 Zielke, I. H. Traverse City
 Zimmerman, J. G. Traverse City

Gratiot-Isabella-Clare Counties

Aldrich, Alfred L. Ithaca
 Barstow, D. K. St. Louis
 Barstow, William E. St. Louis
 Baskerville, C. M. Mt. Pleasant
 Becker, Myron G. Edmore
 Budge, M. J. Ithaca
 Burch, L. J. Mt. Pleasant
 Burt, C. E. Ithaca
 Carney, T. J. Alma
 Dale, Edward C. Shepherd
 Davis, L. L. Mt. Pleasant
 Drake, Wilkie M. Breckenridge
 Du Bois, C. F. Alma
 Graham, B. J. Alma

Hall, B. C. Pompeii
 Hammerberg, Kuno Clare
 Harrigan, W. L. Mt. Pleasant
 Hersee, Wm. E. Mt. Pleasant
 Hobbs, A. D. St. Louis
 Howe, Leslie A. Breckenridge
 Howell, Don M. Bay City
 Johnson, P. R. Mt. Pleasant
 Kilborn, H. F. Ithaca
 McArthur, Stewart C. Clare
 Miller, S. W. Alma
 Oldham, E. S. Breckenridge
 Putzig, Louis M. Blanchard

Rondot, E. F. Lake
 Rottschaefer, J. L. Alma
 Sanford, B. J. Clare
 Sarven, James D. Middleton
 Silvert, P. P. Vestaburg
 Slattery, F. G. Clare
 Strange, Russell H. Mt. Pleasant
 Town, F. R. Mt. Pleasant
 Waggoner, R. L. St. Louis
 Wilcox, R. A. Alma
 Wilson, Earl C. Harrison
 Wolfe, Kenneth P. Alma
 Wood, Cornelius B. Clare

Hillsdale County

Alleger, W. E. Pittsford
 Bower, Charles T. Hillsdale
 Clobridge, C. E. Allen
 Day, Luther W. Jonesville
 Davis, L. A. Montgomery
 Fisk, Fred B. Jonesville
 Gray, J. P. Hillsdale
 Green, B. F. Hillsdale

Hanke, George R. Ransom
 Hodge, C. L. Reading
 Hughes, Henry F. Hillsdale
 *Johnson, C. E. Camp Grant, Ill.
 *Kinzel, R. W. Address Unknown
 Kline, Fred D. Litchfield
 MacNeal, J. A. Hillsdale
 Martindale, E. A. Hillsdale

Mattson, H. F. Hillsdale
 Miller, Harry C. Hillsdale
 Poppen, C. J. Reading
 Sandor, A. A. Hillsdale
 Sawyer, Walter Jonesville
 Sterling, John S. Jerome
 Strom, A. W. Hillsdale

Houghton-Baraga-Keweenaw Counties

Abrams, James C. Calumet
 *Acocks, J. R. Selfridge Field, Mich.
 *Aldrich, Leonard Indianapolis, Ind.
 Bourland, Philip D. Calumet
 Brewington, George F. Mohawk
 Coffin, Leslie E. Painesdale
 Cooper, C. A. Hancock
 Gregg, W. T. S. Calumet
 Hillmer, R. E. Beacon Hill
 Janis, A. J. Hancock

*Kadin, Maurice Rockford, Ill.
 King, William T. Ahmeek
 Kirton, Joseph R. W. Calumet
 LaBine, Alfred Houghton
 Levin, Simon Houghton
 MacQueen, Donald K. Laurium
 Manthei, W. A. Lake Linden
 Marshall, Frank F. L'Anse
 Pleune, R. E. Houghton

Quick, James B. Laurium
 Roche, A. C. Calumet
 Roche, Andrew M. Calumet
 Sarvela, H. L. Hancock
 Scott, William P. Houghton
 Sloan, Paul S. Houghton
 Stern, Isadore D. Houghton
 Stewart, G. C. Hancock
 *Stewart, Marshall. Washington, D. C.
 Ware, H. M. Nahma

Huron County

Gettel, Roy R. Kinde
 Henderson, J. Bates. Sebewaing
 Herrington, Charles I. Bad Axe

Herrington, Willet J. Bad Axe
 Holdship, Wm. B. Ubly
 Monroe, Duncan J. Elkton
 Morden, Charles B. Bad Axe

Oakes, C. W. Harbor Beach
 Ritsema, John Sebewaing
 Scheurer, C. Pigeon
 Thumme, Harrison F. Sebewaing

Ingham County

Albers, J. H. Boston, Mass.
 Albert, Wilford D. Leslie
 Barnum, S. V. Lansing
 Barrett, C. D. Mason
 Bartholomew, Henry S. Harbor Beach
 Bauer, Theodore I. Lansing
 Behen, William C. Lansing
 Bellinger, E. G. Lansing
 Black, Charles E. Lansing
 Block, Bernita Lansing
 Bradford, C. W. Lansing
 Breakey, Robert S. Lansing
 Brubaker, E. Lansing
 Brucker, Karl B. Lansing

Bruegel, Oscar H. East Lansing
 Burhans, Robert Lansing
 Cameron, W. J. Lansing
 Carr, Earl I. Lansing
 Christian, L. G. Lansing
 Clark, William E. Mason
 Clinton, George Mason
 Cook, R. J. Lansing
 Cope, H. E. Lansing
 Corneliussen, Goldie Lansing
 Corsaut, J. C. Mason
 Cross, Frank S. Lansing
 Darling, L. H. Lansing
 Dart, Dorothy Lansing

Davenport, C. S. Lansing
 Dean, Carleton Lansing
 DeLay, C. P. Webberville
 DeVries, C. F. Lansing
 Doyle, Charles R. Lansing
 Doyle, C. P. Lansing
 Drolett, Fred J. Lansing
 Drolett, Lawrence Lansing
 Dunn, F. C. Lansing
 Dunn, F. M. Lansing
 Ellis, Bertha W. Lansing
 Ellis, C. W. Lansing
 Finch, Russell L. Lansing
 Fisher, D. W. Lansing

ROSTER

Folkers, Leonard M. East Lansing
Fosget, Wilbur W. Lansing
Foust, E. H. Lansing
French, Horace L. Lansing
Galbraith, Dugald A. Lansing
Gardner, C. B. Lansing
*Gibson, Thomas E. Selfridge Field, Mich.
Goldner, R. E. Lansing
Gunderson, G. O. Lansing
Hagele, Marie A. Lansing
Harris, Dean W. Lansing
Harrold, J. F. Lansing
Hart, L. C. Lansing
Haynes, H. B. Lansing
Haze, Harry A. Lansing
Heckert, Frank B. Lansing
Heckert, J. K. Lansing
Hendren, Owen Williamston
Henry, L. L. Lansing
Hermes, Ed. J. Lansing
Himmelberger, R. J. Lansing
Hodges, Kenneth P. Lansing
Holland, Charles F. East Lansing
Huggett, Clare C. Lansing
Huntley, Fred M. Lansing
Hurth, M. S. Lansing
Johnson, K. H. Lansing
Jones, Francis A. Lansing
Jones, Francis, Jr. Lansing
Kalmbach, R. E. Lansing
Keim, C. D. Lansing
Kelly, Wm. H. Lansing
Kent, Edith Hall. Lansing
Kent, Herbert K. Lansing
Kraft, L. C. Leslie
Kramer, S. D. Lansing
Larrabee, E. E. Williamston

LeDuc, Don M. Lansing
Loree, Maurice C. Lansing
Lucas, T. A. Lansing
Ludlum, L. C. Lansing
Martin, Wayne O. Lansing
McConnell, E. G. Lansing
McCorvie, C. Ray. East Lansing
McCoy, Earl M. Grand Ledge
McCumb, R. R. Lansing
McElmurry, N. K. Perry
McGillicuddy, Oliver B. Lansing
McGillicuddy, R. J. Lansing
McIntyre, J. E. Lansing
McNamara, William E. Lansing
McPherson, E. G. Mt. Clemens
Meade, Wm. H. East Lansing
Mercer, Walter E. East Lansing
Meyer, Hugh R. Lansing
Miller, H. A. Lansing
Mitchell, A. B. Lansing
Morrow, R. J. Lansing
Niles, B. D. Lansing
Ochsner, P. J. Lansing
O'Sullivan, Gertrude Mason
Phillips, R. H. Lansing
Pinkham, R. A. Lansing
Ponton, J. Mason
Potter, Earl C. Lansing
Prall, H. J. Lansing
Randall, O. M. Lansing
Richards, F. D. DeWitt
Ripka-Hautau, Emily. Lansing
Roberts, D. W. Okemos
Roberts, Russell Lansing
Robson, Edmund J. Lansing
Rozan, J. S. Lansing
Rozan, M. M. Lansing
Russell, Claude V. Lansing

Sander, John F. Lansing
Sanford, Thomas M. Lansing
Schnute, Louise F. East Lansing
Seger, Fred L. Lansing
Shaw, Milton Lansing
Sherman, George A. Lansing
Sichler, Harper G. Lansing
Silverman, Irving E. Lansing
Smith, Anthony V. Mason
Smith, H. M. Lansing
Smith, Lillian R. Lansing
Snell, D. M. Lansing
Snyder, Le Moyne. Lansing
Spencer, Perry Lansing
Steiner, A. A. Lansing
Stiles, Frank Lansing
Strauss, P. C. Lansing
Stringer, C. J. Lansing
Swartz, Frederick C. Lansing
Tamblyn, F. W. Lansing
Thiehoff, E. V. Lansing
*Toothaker, Kenneth. Great Lakes, Ill.
Towne, Lawrence C. Lansing
Troost, F. L. Holt
Vander Slice, E. R. Lansing
*Vander Zalm, T. P. Camp Hulin, Texas
Wadley, R. Lansing
Warford, J. T. Lansing
Webb, Roy O. Okemos
Weinburgh, H. B. Lansing
Welch, William H. Lansing
*Wellman, John M. Atlanta, Ga.
Wetzel, John O. Lansing
Wheeler, Warren E. Detroit
Wiley, Harold W. Lansing
Willson, Howard S. Lansing
Wilson, Harry A. Lansing

Ionia-Montcalm Counties

Bird, William L. Greenville
Botting, A. J. Portland
Bower, A. J. Greenville
Bracey, L. E. Sheridan
Braley, Frank. Saranac
Bunce, E. P. Trufant
Dunkin, Lloyd S. Greenville
Ferguson, F. H. Carson City
Fleming, J. C. Pewamo
Fox, Harold M. Portland
Fuller, Rudolphus W. Crystal
Geib, O. P. Carson City
Hansen, Carl M. Stanton
Hansen, M. M. Greenville

Haskell, Robert H. Northville
Hoffs, M. A. Lake Odessa
Holland, A. E. Belding
Imus, H. L. Ionia
Johns, Joseph J. Ionia
Kelsey, L. E. Lakeview
Kling, V. F. Ionia
Lilly, Isaac S. Stanton
Lintner, Roy C. Ionia
Marsh, F. M. Ionia
Marston, L. L. Lakeview
McCann, John J. Ionia
Mintz, Morris J. Greenville

Norris, William W. Portland
Peabody, C. H. Lake Odessa
Pankhurst, C. T. Ionia
Phelps, Everett L. Clarksville
Robertson, P. C. Ionia
Seidel, Karl E. Ionia
Slagh, Milton E. Saranac
Socha, Edmund S. Ionia
Swift, E. R. Lakeview
VanDuzen, V. L. Belding
VanLoo, J. A. Belding
Weaver, Harry B. Greenville
Whitten, R. R. Ionia
Willits, C. O. Saranac

Jackson County

Ahronheim, J. H. Jackson
Alter, R. H. Jackson
Appel, S. Jackson
Baker, G. M. Parma
Balconi, Henry Jackson
*Bartholic, F. W. Camp Forrest, Tenn.
Beckwith, S. A. Stockbridge
Brown, H. A. Jackson
Bullen, G. R. Jackson
Chabut, H. M. Jackson
Chivers, R. W. Jackson
Clarke, C. S. Jackson
Cochrane, Wayne A. Jackson
Cooley, Randall M. Jackson
Corley, C. Jackson
Corley, Ennis Jackson
Cox, Ferdinand Jackson
*Crowley, Edward D. Pearl Harbor, T. H.
Culver, Guy D. Stockbridge
DeMay, C. E. Jackson
Dengler, C. R. Jackson
Edmonds, J. M. Horton
Enders, W. H. Jackson
Finton, Walter L. Jackson
Finton, W. R. Jackson
Foust, W. L. Grass Lake
Gibson, F. J. Jackson
Glover, H. G. Jackson
Greenbaum, Harry Jackson

Hackett, T. E. Jackson
Hanft, Cyril F. Springport
Hanna, R. J. Jackson
Hardie, G. C. Jackson
Harris, Lester J. Jackson
Hicks, Glenn C. Jackson
Holst, John B. Jackson
Huntley, W. B. Jackson
Hurley, H. L. Jackson
Keefer, A. H. Concord
Kudner, Don F. Jackson
Lake, William H. Jackson
Lathrop, William W. Jackson
*LaVictoire, I. N. Cavite, P. I.
Leahy, E. O. Jackson
Lenz, C. R. Jackson
Leonard, Clyde A. Jackson
*Ludwick, J. E. New Orleans
McGarvey, W. E. Jackson
McLaughlin, M. J. Jackson
Meads, J. B. Jackson
Miller, J. L. Jackson
Munro, James E. Jackson
Murphy, B. M. Jackson
Newton, R. E. Jackson
Nichols, R. H. Grand Rapids
O'Meara, James J. Jackson
Otis, Grant L. Jackson
Payne, Andrew K. Jackson
Porter, H. W. Jackson

Pray, Frank F. Jackson
Pray, George R. Jackson
Ransom, F. G. Jackson
Riley, Philip. Jackson
Roberts, Arthur J. Jackson
Schepeler, Courtland W. Brooklyn
Scheurer, Peter Arthur. Manchester
Schmidt, T. E. Jackson
Scott, John. Jackson
Seybold, E. G. Jackson
Shaeffer, A. M. Jackson
Sirhal, Alfred M. Brooklyn
Smith, Dean W. Jackson
Southwick, W. A. Springport
Speck, John W. Jackson
Stewart, L. L. Jackson
Sugar, Samuel. Jackson
Susskind, M. V. Jackson
Tate, Cecil E. Jackson
Thayer, E. A. Jackson
Thalner, L. F. Jackson
Townsend, J. W. Vandercook Lake
Tuthill, F. S. Concord
Van Schoick, J. D. Hanover
Van Schoick, Frank. Jackson
Vivirski, Edward E. Jackson
Werthenberger, M. D. Jackson
Wholihan, John W. Michigan Center
Wickham, W. A. Jackson
Wilson, N. D. Jackson
Woodward, G. D. Jackson

Kalamazoo County

Aach, Hugo. Kalamazoo
Adams, R. U. Kalamazoo
Alexander, C. A. Kalamazoo
Andrews, Sherman. Kalamazoo
Armstrong, Robert J. Kalamazoo
Bannor, Lawrence R. Kalamazoo
Barnebee, J. Hosea Kalamazoo

Barnebee, J. W. Kalamazoo
Barrett, F. Elizabeth. Kalamazoo
Behan, Gerald W. Galesburg
Bennett, Charles L. Kalamazoo
*Bennett, Keith Fort Custer
Berry, J. F. Kalamazoo
Bodmer, H. C. Kalamazoo

Borgman, Wallace. Kalamazoo
Boys, C. E. Kalamazoo
Brooks, Ervin D. Kalamazoo
Brown, I. W. Kalamazoo
Burns, J. T. Kalamazoo
Caldwell, George H. Kalamazoo
Cobb, Horace R. Kalamazoo

ROSTER

Cook, R. G. Kalamazoo
 *Crane, W. B. Fort Custer
 Crawford, Kenneth. Kalamazoo
 Dahlstrom, Doris. Kalamazoo
 Dean, Ray. Three Rivers
 Den Bleyker, Walter. Kalamazoo
 DeWitt, L. H. Kalamazoo
 Dowd, B. J. Kalamazoo
 Doyle, F. M. Kalamazoo
 Ertell, William Francis. Kalamazoo
 Fast, R. B. Kalamazoo
 Fopeano, John V. Kalamazoo
 Fulkerson, C. B. Kalamazoo
 Fuller, R. T. Kalamazoo
 Fuller, Paul. Kalamazoo
 Gerstner, Louis. Kalamazoo
 Gilding, Joseph. Vicksburg
 Glenn, Audrey. Kalamazoo
 Grant, Frederick E. Kalamazoo
 *Gray, Arthur S. Kalamazoo
 Gregg, Sherman. Kalamazoo
 Harter, Randolph S. Schoolcraft
 Heersma, H. S. Kalamazoo
 Hildreth, R. C. Kalamazoo
 Hobbs, Edward J. Galesburg
 Hodgman, Albert B. Kalamazoo
 Hoebeke, William G. Kalamazoo
 *Holder, Charles. Kalamazoo
 Howard, W. H. Galesburg
 Hubbell, R. J. Kalamazoo
 Huyser, William C. Kalamazoo
 Ilgenfritz, F. M. Kalamazoo
 Irwin, William D. Kalamazoo
 Jackson, Howard C. Kalamazoo

Jackson, John B. Kalamazoo
 Jennings, W. O. Kalamazoo
 Kavanaugh, William R. Kalamazoo
 Kenzie, W. N. Battle Creek
 Klerk, W. J. Kalamazoo
 Koestner, Paul. Kalamazoo
 Kuhs, Milton L. Kalamazoo
 Lambert, R. H. Kalamazoo
 Lang, W. W. Kalamazoo
 Lavender, Howard. Kalamazoo
 Light, Richard Upjohn. Kalamazoo
 Light, S. Rudolph. Kalamazoo
 Littig, John. Kalamazoo
 MacGregor, J. R. Kalamazoo
 Malone, James G. Kalamazoo
 Marshall, Don. Kalamazoo
 McCarthy, J. S. Kalamazoo
 *McIntyre, Charles H. Kalamazoo
 Moe, Carl Rex. Kalamazoo
 Morter, Roy A. Kalamazoo
 *Nell, Edward R. Kalamazoo
 Rizal, Philippine Islands
 Nibbelink, Benjamin. Kalamazoo
 Nystrom, Ruth. Kalamazoo
 Okun, M. H. Kalamazoo
 *Osborne, Charles E. Kalamazoo
 Fort Statsenburg, P. I.
 Patmos, Martin. Kalamazoo
 Peelen, J. W. Kalamazoo
 Peelen, Matthew. Kalamazoo
 Perry, Clifton. Kalamazoo
 Pratt, F. A. Kalamazoo
 Prentice, Hazel R. Kalamazoo
 Pullon, A. E. Kalamazoo

Rasmussen, Leo. Vicksburg
 Rigterink, G. H. Kalamazoo
 Rigterink, H. A. Kalamazoo
 Rockwell, Donald C. Kalamazoo
 Ryan, F. C. Kalamazoo
 Sage, E. D. Kalamazoo
 Scholten, D. J. Kalamazoo
 Scholten, William. Kalamazoo
 Schrier, C. M. Kalamazoo
 Schrier, Paul. Kalamazoo
 Schrier, Thomas. Comstock
 Scott, William A. Kalamazoo
 Sears, H. A. Kalamazoo
 Shackleton, William E. Kalamazoo
 Shepard, Benjamin A. Kalamazoo
 Shook, R. W. Kalamazoo
 Simpson, B. W. Kalamazoo
 Snyder, Roscoe F. Kalamazoo
 Sofen, Morris B. Kalamazoo
 Southworth, M. N. Schoolcraft
 Stryker, Homer H. Kalamazoo
 Upjohn, E. Gifford. Kalamazoo
 Upjohn, L. N. Kalamazoo
 Van Urk, Thomas. Kalamazoo
 Ver Hage, Martin. Kalamazoo
 Volderauer, John C. Kalamazoo
 Wagar, Carl. Kalamazoo
 *Wagenaar, E. H. Kalamazoo
 Fort Benj. Harrison, Indiana
 Walker, Burt D. Kalamazoo
 Weirich, Richard. Marcellus
 Westcott, L. E. Kalamazoo
 Wilbur, E. P. Kalamazoo
 Youngs, A. S. Kalamazoo
 Youngs, C. A. Kalamazoo

Kent County

*Adams, F. A. San Diego, Calif.
 Aitken, George T. Grand Rapids
 Allen, R. V. Grand Rapids
 Andre, Harvey M. Grand Rapids
 Bachman, G. A. Grand Rapids
 Baert, George H. Grand Rapids
 Baker, Abel J. Grand Rapids
 Ballard, M. S. Grand Rapids
 Balysat, Gordon W. Grand Rapids
 Batts, Martin. Grand Rapids
 Beaton, James H. Grand Rapids
 Beeman, Carl B. Grand Rapids
 Beeman, C. E. Grand Rapids
 Beets, W. Clarence. Grand Rapids
 Bell, Charles M. Grand Rapids
 Bettison, Wm. Grand Rapids
 Billings, Elton P. Grand Rapids
 Blackburn, Henry. Grand Rapids
 Bloxson, Paul. Grand Rapids
 Boelkins, Richard C. Grand Rapids
 Boet, F. A. Grand Rapids
 *Boet, John. Alexandria, La.
 Bond, George Lewis. Grand Rapids
 Bosch, L. C. Grand Rapids
 Brace, Fred. Grand Rapids
 Brayman, C. W. Cedar Springs
 Brennecke, Frances E. Grand Rapids
 Brink, Russel. Grand Rapids
 Brook, Jacob D. Grand Rapids
 Brotherhood, James. Grand Rapids
 Buesing, O. R. Grand Rapids
 Buist, S. J. Grand Rapids
 Bull, Frank L. Sparta
 Burleson, John S. Grand Rapids
 Burling, Wesley. Grand Rapids
 Butler, William J. Grand Rapids
 Byrd, Mary Lou. Grand Rapids
 Campbell, Alexander McKenzie
 Grand Rapids
 Carpenter, Luther Clarendon
 Grand Rapids
 Chadwick, W. L. Grand Rapids
 Chamberlain, L. H. Grand Rapids
 Chandler, Donald. Grand Rapids
 Claytor, R. W. Grand Rapids
 Colliis, H. S. Grand Rapids
 Colvin, W. G. Grand Rapids
 Corbus, Burton R. Grand Rapids
 Cosgrove, Wm. J. Grand Rapids
 Crane, Charles V. Grand Rapids
 Crane, Harold D. Grand Rapids
 Currier, F. P. Grand Rapids
 Damstra, H. J. Grand Rapids
 Davis, D. B. Grand Rapids
 Dean, Alfred W. Grand Rapids
 De Boer, Guy William. Grand Rapids
 Dell, E. E. Sand Lake
 DeMaagd, Gerald. Rockford
 DeMol, Richard J. Grand Rapids
 Denham, R. H. Grand Rapids
 De Pree, Isla G. Grand Rapids
 De Pree, Joseph. Grand Rapids
 DeVel, Leon. Grand Rapids
 De Vries, Daniel. Grand Rapids
 Dewar, M. M. Grand Rapids
 Dick, Mark W. Grand Rapids

Dixon, Willis L. Grand Rapids
 Doran, Frank. Grand Rapids
 Driscoll, Edward T. Grand Rapids
 Droste, James C. Grand Rapids
 DuBois, William J. Grand Rapids
 Eaton, Robert M. Grand Rapids
 Eggleston, H. Grand Rapids
 *Farber, Charles E. Detroit
 Faust, L. W. Grand Rapids
 Fellows, Kenneth E. Grand Rapids
 Ferguson, James. Grand Rapids
 Ferguson, Lynn A. Grand Rapids
 Ferguson, Ward S. Grand Rapids
 Ferrand, L. Rockford
 Fitts, Ralph L. Grand Rapids
 *Flynn, J. Donald. Chicago, Ill.
 Foshee, J. C. Grand Rapids
 *Frantz, C. R. Alexandria, La.
 *Freyling, Robert. San Diego, Calif.
 Gaikema, E. W. Grand Rapids
 Geenen, C. J. Grand Rapids
 Gibbs, F. F. Grand Rapids
 Gilbert, R. H. Grand Rapids
 Gillett, O. H. Grand Rapids
 Grant, Lee O. Grand Rapids
 Graybiel, George P. Caledonia
 Griffith, L. S. Grand Rapids
 Haack, Wm. Grand Rapids
 Hagerman, D. B. Grand Rapids
 Hayes, L. W. Howard City
 Heetderks, Dewey R. Grand Rapids
 Henry, James, Jr. Grand Rapids
 Herrick, Ruth. Grand Rapids
 Hill, A. Morgan. Grand Rapids
 *Hilt, Lawrence M. Grand Rapids
 Mare Island, Calif.
 Hodgen, J. T. E. Grand Rapids
 Holcomb, J. W. Grand Rapids
 Holdsworth, M. J. Grand Rapids
 Holkeboer, Henry D. Grand Rapids
 Hollander, Stephen. Grand Rapids
 Hoogerhyde, Jack. Grand Rapids
 Houghton, G. D. Caledonia
 Hufford, A. R. Grand Rapids
 Hunderman, Edward. Grand Rapids
 Hutchinson, Robert J. Grand Rapids
 Hyland, W. A. Grand Rapids
 Ingersoll, C. F. Grand Rapids
 Irwin, Thomas C. Grand Rapids
 Jameson, Fred M. Grand Rapids
 Jaracz, W. J. Grand Rapids
 Jarvis, Charles. Grand Rapids
 *Kelly, Robert E. Detroit
 Kemmer, Thomas R. Grand Rapids
 Kendall, Eugene L. Grand Rapids
 *Klaus, C. D. Chicago, Ill.
 Kniskern, P. W. Grand Rapids
 Kooistra, Henry P. Grand Rapids
 Kremer, John. Grand Rapids
 Kreulen, H. J. Grand Rapids
 Kriekard, P. J. Grand Rapids
 Krupp, C. G. Grand Rapids
 Laird, Robert G. Grand Rapids
 Lamb, George F. Grand Rapids
 Lanning, N. E. Grand Rapids
 Lanting, D. B. Grand Rapids
 *Lavan, John. Brooklyn, New York

Lentini, Joseph R. Grand Rapids
 Le Roy, Simeon. Grand Rapids
 Loeffers, Harry. Grand Rapids
 Lyman, William D. Grand Rapids
 MacDonald, James A. Lowell
 *Marrin, M. M. Fort Bliss, Texas
 Marsh, J. P. Grand Rapids
 McDougall, Clarice. Grand Rapids
 McKenna, J. L. Grand Rapids
 McKinlay, L. M. Grand Rapids
 McRae, John H. Grand Rapids
 Meengs, Jacob Earl. Grand Rapids
 Mehney, Gayle H. Grand Rapids
 Miller, J. Duane. Grand Rapids
 Miller, John J. Marne
 Mitchell, H. C. Grand Rapids
 Mitchell, W. B. Grand Rapids
 Moen, Cornetta G. Grand Rapids
 Moleski, Leo. Grand Rapids
 *Moleski, Stanley L. Great Lakes, Ill.
 Moll, Arthur M. Grand Rapids
 Mollman, Arthur. Grand Rapids
 Moore, Vernon M. Grand Rapids
 Mouw, Richard. Grandville
 Mulder, J. D. Grand Rapids
 Murphy, M. J. Grand Rapids
 Nelson, A. R. Grand Rapids
 Noordewier, Albert. Grand Rapids
 Northrup, William. Grand Rapids
 Oliver, W. W. Grand Rapids
 Osborne, Howard. Grand Rapids
 Paalman, Russell J. Grand Rapids
 Patterson, P. Willfred. Grand Rapids
 Pedden, J. R., Jr. Grand Rapids
 Phillips, J. W. Grand Rapids
 Pyle, Henry J. Grand Rapids
 Ragsdale, L. V. Grand Rapids
 Ralph, L. Paul. Grand Rapids
 Reed, Torrance. Grand Rapids
 Reus, William F. Jamestown
 Rigterink, J. W. Grand Rapids
 Riley, G. L. Grand Rapids
 Roberts, Mortimer E. Grand Rapids
 Robinson, Harold C. Grand Rapids
 Rodgers, W. L. Grand Rapids
 Rogers, John R. Grand Rapids
 Roth, Emil M. Grand Rapids
 Schermerhorn, L. J. Grand Rapids
 Schnoor, E. W. Grand Rapids
 Schuitema, Donald. Grand Rapids
 Sevensma, Elisha S. Grand Rapids
 Sevey, L. E. Grand Rapids
 *Shellman, Millard W. Chicago, Ill.
 Shepard, B. H. Lowell
 Slemmons, C. C. Grand Rapids
 Sluyter, J. S. Grand Rapids
 Smith, A. B. Grand Rapids
 Smith, Ferris N. Grand Rapids
 Smith, R. Earle. Grand Rapids
 Snapp, Carl F. Grand Rapids
 Snyder, Clarence. Grand Rapids
 Southwick, George H. Grand Rapids
 Steffensen, W. H. Grand Rapids
 Stonehouse, G. G. Grand Rapids
 Stover, Virgil E. Grand Rapids
 Stuart, Gerhardus J. Grand Rapids

ROSTER

Sugg, Cullen E.....Grand Rapids
 Sus Strong, Carl A.....Grand Rapids
 Swenson, H. C.....Grand Rapids
 Ten Have, J.....Grand Rapids
 Tesseine, A. J.....Grand Rapids
 Teusink, J. H.....Cedar Springs
 Thompson, Archibald B.....Grand Rapids
 Thompson, Athol B.....Grand Rapids
 Thompson, P. L.....Grand Rapids
 Tidey, Marcus B.....Grand Rapids
 Tiffany, Joseph C.....Grand Rapids
 Torgerson, William R.....Grand Rapids
 Van Belois, Harvard J.....Grand Rapids

Best, Herbert M.....Lapeer
 Bishop, G. Clare.....Almont
 Burley, David H.....Almont
 Chapin, Clarence D.....Columbiaville
 Dorland, Clark.....Lapeer

Abraham, A. O.....Hudson
 Blanchard, L. E.....Hudson
 Bland, J. P.....Adrian
 Blanden, Merwin R.....Tecomseh
 *Campbell, C. A.....Detroit
 Case, C. W.....Onsted
 Clafin, G. M.....Adrian
 Clark, A. D.....Adrian
 *Claxton, W. T.....Fort Sill, Okla.
 Colbath, W. E.....Adrian
 Evans, E. E.....Adrian
 Hall, G. C.....Adrian
 Hammel, H. H.....Tecomseh

Brigham, Jeannette.....Howell
 Cameron, Duncan A.....Brighton
 Duffy, Ray M.....Pinckney
 Finch, E. D.....Howell
 *Gamble, Shelby G.....Fort Crook, Nebr.

Berghorst, John.....Newberry
 Bohn, Frank P.....Newberry
 Campbell, Earl H.....Newberry
 Cogger, Thomas W.....Newberry
 Franklin, Sidney.....Newberry

Allen, L. K.....Roseville
 Banting, O. F.....Richmond
 Barker, J. G.....Centerline
 Berry, Henry G.....Mt. Clemens
 Bower, A. B.....Armada
 Caster, E. Wilbur.....Mt. Clemens
 Croman, Joseph M., Jr.....Mt. Clemens
 Croman, Joseph M., Sr.....Mt. Clemens
 Curlett, James E.....Roseville
 *Deurloo, Henry W.....Camp Wallace, Texas
 Dudzinski, Edmund J.....New Baltimore
 Earnhardt, J. M.....St. Clair Shores

Bryan, Kathryn M.....Manistee
 Grant, C. L.....Manistee
 Hansen, E. C.....Manistee
 *Konopa, John F.....Fort Custer, Mich.

Bennett, Arthur K.....Marquette
 Berry, Robert F.....Marquette
 Bertucci, J. P.....Ishpeming
 Blake, H. P.....Marquette
 Casler, W. L.....Marquette
 Cooperstock, M.....Marquette
 Corcoran, W. A.....Ishpeming
 Drury, Charles P.....Marquette
 Elzinga, E. R.....Marquette
 Fennie, F. A.....Marquette
 Manelin, H. A.....Marquette

Van Bree, R. S.....Grand Rapids
 Vanden Berg, Henry J.....Grand Rapids
 VanDuine, H. J.....Byron Center
 Van Noord, Gelmer A.....Cutlerville
 Van Solkema, Andrew.....Grand Rapids
 Van Solkema, Arthur.....Grandville
 Van Woerkom, Daniel.....Grand Rapids
 Veenboer, Wm.....Grand Rapids
 Veldman, Harold E.....Grand Rapids
 Venema, Jay R.....Grand Rapids
 Vis, William R.....Grand Rapids
 Vyn, J. D.....Grand Rapids
 Warnshuis, Frederick C.....Windsor, Ontario

Lapeer County

Hanna, Frederick R.....Lapeer
 Jackson, Carl C.....Imlay City
 McBride, J. R.....Lapeer
 McLeod, K. W. A.....Lapeer
 Merz, Henry G.....Lapeer

Lenawee County

Hardy, P. B.....Tecomseh
 Heffron, Howard H.....Adrian
 Helzerman, Ralph F.....Tecomseh
 Hewes, A. B.....Adrian
 Hornsby, W. B.....Clinton
 Howland, F. A.....Adrian
 Iler, Harris D.....Clinton
 Jewett, William E., Jr.....Adrian
 Lamley, Arthur E.....Blissfield
 Loveland, Horace H.....Tecomseh
 MacKenzie, W. S.....Adrian
 *Marsh, R. G. B.....Alexandria, La.
 McCue, F. J.....Hudson

Livingston County

Glenn, B. H.....Fowlerville
 Hayner, R. A.....Howell
 Hendren, J. J.....Fowlerville
 Hill, Harold C.....Howell
 Huntington, H. G.....Howell
 Laboe, E.....Howell

Luce County

Gibson, Robert E.....Newberry
 Lance, Paul E.....Romeo
 Perry, Henry E.....Newberry
 Purmort, William R., Jr.....Newberry
 Rehn, Adolph T.....Newberry

Macomb County

Engels, J. A.....Richmond
 Fluemer, Oswald.....Mt. Clemens
 Hawley, R. E.....St. Clair Shores
 Heine, A. W.....Mt. Clemens
 Kane, William J.....Mt. Clemens
 Lane, W. D.....Romeo
 Lynch, Russell E.....Center Line
 Moore, G. F.....Mt. Clemens
 Reichman, Joseph J.....Mt. Clemens
 Reitzel, R. H.....Mt. Clemens
 Rivard, C. L.....St. Clair Shores
 Roth, G. E.....Armada
 Rothman, A. M.....East Detroit

Manistee County

Lewis, Lee A.....Manistee
 MacMullen, Harlen.....Manistee
 Miller, E. B.....Manistee
 Norconk, Ward H.....Bear Lake

Marquette-Alger Counties

Harkin, J. C.....Marquette
 Hart, P. P.....Ishpeming
 Hornbogen, D. P.....Marquette
 Janes, R. Grant.....Marquette
 Keskey, George I.....Marquette
 Lambert, W. C.....Marquette
 LeGolvan, C.....Marquette
 McCann, Neal J.....Ishpeming
 Mudge, W. A.....Negaunee
 Nicholson, J. B.....Marquette
 Picotte, Wilfrid S.....Ishpeming

Webb, Rowland.....Grand Rapids
 Webster, G. W.....Grand Rapids
 Wedgewood, L. G.....Grandville
 Wells, Merrill.....Grand Rapids
 Wenger, A. V.....Grand Rapids
 Wenger, John N.....Coopersville
 *Whalen, John M.....San Diego, Calif.
 Whinery, Joseph B.....Grand Rapids
 Willits, P. W.....Grand Rapids
 Wilson, Wm. E.....Grand Rapids
 Woodburne, A. R.....Grand Rapids
 Wright, John M.....Grand Rapids
 Wright, Thomas B.....Grand Rapids
 Yegge, J. P.....Kent City

O'Brien, Daniel J.....Lapeer
 Smith, G. L.....Imlay City
 Thomas, J. Orville.....North Branch
 Tinker, F. A.....Lapeer
 Zemmer, H. B.....Lapeer

McCue, F. J., Jr.....Hudson
 *Miller, Perry L.....Camp McCoy, Wis.
 Morden, Esli T.....Adrian
 Pasternacki, Arthur S.....Adrian
 Patmos, Bernard.....Adrian
 Peters, W. L.....Morenci
 Raabe, E. C.....Morenci
 Rawson, A. P.....Addison
 Rogers, J. D.....Adrian
 Spalding, I. L.....Hudson
 Stafford, Leo J.....Adrian
 VanDusen, C. A.....Blissfield
 Wood, A. C.....Adrian
 Wynn, G. H.....Adrian

Leslie, G. L.....Howell
 Lojaco, S.....Howell
 McDowell, Guy Marshall.....Howell
 McGregor, Archie J.....Brighton
 Sigler, Hollis L.....Howell
 Stephens, D. C.....Howell

Spinks, Robert Earl.....Newberry
 *Surrell, M. A.....Camp Blanding, Fla.
 *Swanson, George.....Newberry
 Toms, Charles B.....Newberry

Salot, R. F.....Mt. Clemens
 Scher, Joseph N.....Mt. Clemens
 Sibrans, W. A.....East Detroit
 Siegfried, E. G.....New Haven
 Smith, M. C.....Mt. Clemens
 Stone, Elizabeth A.....Romeo
 Sturm, Fred A.....St. Clair Shores
 Thompson, A. A.....Mt. Clemens
 Ullrich, R. W.....Mt. Clemens
 *Wellard, Henry G.....Alexandria, La.
 Wilde, M. M.....Warren
 Wiley, Bruce.....Utica
 Wiley, Herbert H.....Utica
 Wolfson, Victor H.....Mt. Clemens

Oakes, Ellery A.....Manistee
 Ogilvie, G. D.....Manistee
 Quinn, Henry M.....Copemish
 Ramsdell, Homer A.....Manistee
 Whitley, Alec.....Bear Lake

Robbins, Nelson J.....Negaunee
 *Schutz, W. J.....Address Unknown
 Sicotte, Isaiah.....Michigamme
 Swinton, A. L.....Marquette
 Talso, Jacob.....Ishpeming
 Vandeventer, Vivian.....Ishpeming
 Van Riper, Paul.....Champion
 Waldie, George M.....Ishpeming
 Wickstrom, George.....Munising
 Witters, Josef E.....Gwinn

ROSTER

Mason County

Blanchette, Victor J.....Scottville
Comodo, N. M.....Ludington
Goulet, L. J.Ludington

Hoffman, Howard.....Ludington
Hunt, I. L.....Scottville
Kirwin, E. J.....Ludington
Martin, W. S.....Ludington

Ostrander, R. A.....Ludington
Paukstis, Charles.....Ludington
Spencer, C. M.....Scottville

Mecosta-Osceola-Lake Counties

Bruggema, JacobEvart
Campbell, James B.....Big Rapids
Chess, Leo F.....Reed City
Franklin, Benjamin L.....Remus
Grieve, Glenn.....Big Rapids

Hall, Clifton.....Big Rapids
Ivkovich, PaulCamp Croft, S. C.
Kilmer, Paul B.....Reed City
Klein, J. PaulReed City
MacIntyre, Donald.....Big Rapids

Peck, Louis K.....Barryton
Phillips, R. W.....Remus
Treyner, Thomas P.....Big Rapids
White, J. A.....Morley
Yeo, Gordon H.....Big Rapids

Medical Society of North Central Counties

(Otsego-Montmorency-Crawford-Oscoda-Roscommon-Ogemaw-Gladwin-Kalkaska Counties)

Beeby, R. J.....West Branch
Clippert, C. G.....Grayling
Coulter, Keith Douglas.....Gladwin
Crandell, C. H.....West Branch
Drescher, George A.....Lewiston
Egle, Joseph L.....Gaylord
Harris, Levi A.....Gaylord

Hendricks, Henning V.....Kalkaska
Jardine, Hugh M.....West Branch
Keyport, C. R.....Grayling
Lanting, Helen E.....Gladwin
*Lanting, Roelof
.....Camp Livingston, La.
LaPorte, Lawrence A.....Gladwin

Martzowka, M. A.....Roscommon
McDowell, Douglas B.....West Branch
McKillop, G. L.....Gaylord
Palm, Geo. W.....Prudenville
Peckham, Richard C.....Gaylord
Sargent, Leland E.....Kalkaska
Stealy, Stanley.....Grayling
Thompson, Sue H.....New York City

Menominee County

Corkill, C. C.....Menominee
Dewane, F. J.....Menominee
Flanagan, Clarence B.....Menominee
*Heidenreich, John R.....
.....Camp Wallace, Texas

Jones, William S.....Menominee
Kaye, J. T.....Menominee
Kerwell, K. C.....Stephenson
Mason, Stephen C.....Menominee
Montgomery, RobertHermansville

Peterson, A. R.....Daggett
Sawbridge, EdwardStephenson
Scully, John C.....Menominee
Sethney, Henry T.....Menominee
Sethney, Walter F.....Menominee
Towey, J. W.....Powers

Midland County

Ballmer, Robert S.....Midland
Gay, Harold Howard.....Midland
Grewe, N. C.....Midland
High, C. V., Jr.....Midland
Linsenmann, Karl W.....Midland

MacCallum, CharlesMidland
Maynard, W. A.....Coleman
Meisel, Edward H.....Midland
Pike, Melvin H.....Midland
Rice, Robert E.....Midland

Sachs, Ralph R.....Midland
Schirack, Ray.....Saginaw
Sherk, J. H.....Midland
Sjolander, Gust.....Midland
Towsley, W. D.....Midland
Von Haitinger, Kalmon S.....Midland

Monroe County

Acker, William F.....Monroe
Ames, Florence.....Monroe
Balk, A. C.....Monroe
Barker, Vincent L.....Monroe
Blakey, L. C.....Monroe
Bond, W. W.....Monroe
Cohen, H. Herbert.....Monroe
Denman, D. C.....Monroe
Dusseau, S. V.....Erie
Ewing, R. T.....Monroe
Flanders, J. P.....Monroe
Gelhaus, William J.....Monroe
Golinvaux, C. J.....Monroe

*Goodman, Louis..San Antonio, Texas
Heffernan, John F.....Carleton
Hensel, HildaMonroe
Hunter, M. A.....Monroe
Johnson, A. Esther.....Monroe
Landon, Herbert W.....Monroe
Long, Edgar C.....Monroe
Long, SaraMonroe
McGeoch, R. W.....Monroe
McMillin, J. H.....Monroe
Meck, H. L.....Dundee
Morely, Louise.....Erie

Moriarty, Walter C.....Monroe
Parmelee, O. E.....Lambertville
Penzotti, StanleyDundee
Pinkus, H. K.....Monroe
Reisig, A. H.....Monroe
Sanger, Emerson J.Monroe
Siffer, J. J.....Monroe
Smith, William A.....Petersburg
Stolpestad, C. T.....Monroe
Tomlinson, Ledyard.....New Port
Wagar, SpencerRockwood
Williams, Robert J.....Monroe

Muskegon County

Anderson, A. J.....Muskegon
August, R. V.....Muskegon Heights
Barnard, HelenMuskegon
Bartlett, F. H.....Muskegon
Beers, CharlesHolton
Benedict, A. L.....Muskegon
Bloom, C. J.....Muskegon
Boyd, D. R.....Muskegon
Bradshaw, Park S.....Muskegon
Chapin, William S...Muskegon Heights
Closz, H. F.....Muskegon
Cohan, Sol G.....Muskegon
Colignon, C. M.....Muskegon
Collier, C. C.....Whitehall
D'Alcorn, ErnestMuskegon
*Dasler, A. F.....Great Lakes, Ill.
Derezhinski, Clement F.....Muskegon
Diskin, FrankMuskegon
Douglas, RobertMuskegon
Durham, C. J.....Muskegon
Dykhuisen, Harold D.....Muskegon
Eckerman, C. T.....Muskegon
Fillingham, EnidMuskegon
Fleishman, C. B.....Muskegon
Fleishman, Norman.....Muskegon
Foss, Edward O.....Muskegon
Garber, F. W., Jr.....Muskegon
Garland, J. O.....Muskegon

Gillard, JamesMuskegon
Goltz, Martha H.....Montague
Griffith, Robert M.Muskegon
Hagen, Wm. A.Muskegon
Hannum, F. W.....Muskegon
Harrington, A. F.....Muskegon
Harrington, R. J.....Muskegon
Hartwell, S. W.....Muskegon
Heneveld, John.....Muskegon
Holly, Leland E.....Muskegon
Holmes, Roy H.....Muskegon
Jackson, S. A.....Muskegon
Kane, Thomas J.....Muskegon
Keilin, MarieMuskegon
Kerr, H. J.....Muskegon
Kniskern, E. L.....Muskegon
LaCore, O. M.....Muskegon Heights
Lange, E. W.....Muskegon
Lauretti, Emil.....Muskegon
Laurin, V. Samuel.....Muskegon
LeFevre, George L.....Muskegon
*LeFevre, Louis
.....Fort Sam Houston, Texas
LeFevre, William M.....Muskegon
Loder, Lionel Lewis.....Muskegon
Loomis, John L.....Muskegon
Loughery, H. B.....Muskegon

Mandeville, C. B.....Muskegon
Medema, Paul E.....Muskegon
Meengs, M. B.....Muskegon Heights
Miller, Philip L.....Muskegon
Morford, F. N.....Muskegon
Morse, Bertram W.....Whitehall
Mulligan, A. W.....Muskegon
Oden, Constantine L.....Muskegon
Olson, R. G.....Muskegon Heights
Pangerl, CarlMuskegon Heights
Petkus, Antoine.....Muskegon
Pettis, Emmett.....Muskegon
Powers, Lunette.....Muskegon
Price, Leonard.....Muskegon
Pyle, H. J.....Muskegon
Risk, R. A.....Muskegon
Risk, Robert D.....Muskegon
*Scholle, N. W.....Muskegon
Sears, Richard.....Muskegon
Spoor, A. A.....Muskegon
Stone, Maxwell E.....Muskegon
Swartout, W. C.....Muskegon
Teifer, Charles A.....Muskegon
Thieme, S. W.....Ravenna
Thornton, E. S.....Muskegon
Wilke, C. A.....Montague
Wilson, P. S.....Muskegon

ROSTER

Newaygo County

Barnum, W. H. Fremont
Deur, T. R. Grant
Edwards, Albert Fremont
Geerlings, Lambert Fremont

Geerlings, Lewis J. Fremont
Geerlings, Willis Fremont
*Gordon, B. F. Fort Custer
Moore, H. R. Newaygo

Saxen, Raymond White Cloud
Stryker, O. D. Fremont
Tompsett, Arthur C. Hesperia

Northern Michigan

(Antrim-Charlevoix-Cheboygan-Emmet Counties)

Blum, Benjamin B. Petoskey
Burns, Dean C. Petoskey
Chapman, James Charlevoix
Chapman, Willis Earle Cheboygan
Conkle, Guy C. Boyne City
Conti, Joseph Petoskey
Conway, William S. Petoskey
Frank, Gilbert E. Harbor Springs
Giffords, Mark Charlevoix
Harrington, H. M. East Jordan

Hegener, A. J. Petoskey
Larson, Walter E. Levering
Lashmet, Floyd H. Petoskey
Lilga, Harris V. Petoskey
Litzenburger, A. F. Boyne City
Mast, W. H. Petoskey
Mayne, Frederick C. Cheboygan
McCune, William Stanley Petoskey
McMillan, Fraley Charlevoix
*Miller, Samuel Urbana, Ill.

Palmer, Russell St. James
Parks, W. H. Petoskey
Reed, Wilbur F. Cheboygan
Rodgers, John Bellaire
Saltonstall, Gilbert B. Charlevoix
Slade, H. G. Onaway
Stringham, J. R. Cheboygan
Tiffany, A. C. Mackinac City
Van Dellen, Jerrian Ellsworth

Oakland County

Abbott, V. C. Pontiac
AschenBrenner, Z. R. Farmington
Baker, Frederick A. Pontiac
Baker, Robert H. Pontiac
Barker, Howard B. Pontiac
Bauer, Ernest W. Hazel Park
Beattie, W. G. Ferndale
Beck, Otto O. Birmingham
*Benning, C. H. San Juan, P. R.
Berg, Richard H. Oxford
Borland, Alexander Pontiac
Boucher, R. E. Royal Oak
Burke, Chauncey G. Pontiac
Burt, F. J. Holly
Butler, Samuel A. Pontiac
Campbell, M. D. Ferndale
Carr, Wm. H. Holly
Christie, Edward D. Pontiac
Christie, J. W. Pontiac
Church, J. E. Pontiac
Cobb, Leon F. Pontiac
Cooper, Robert J. Pontiac
Cottrell, Martha S. Novi
Couchman, Boyd Royal Oak
Crissman, Harold C. Ferndale
Cudney, Ethan B. Pontiac
Dahlgren, Carl Keego Harbor
Darling, C. G., Jr. Pontiac
Dobski, Edwin J. Pontiac
Ekelund, Clifford T. Pontiac
Farnham, Lucius Augustine Pontiac
*Faulconer, Albert Fort Custer
Ferris, Ralph G. Birmingham
Fitzpatrick, Francis Pontiac
Flick, Earl J. Royal Oak
Flick, John R. Royal Oak
Foust, Earl W. Hazel Park
Fox, John W. Pontiac
Francis, Donald Pontiac
*Furlong, Harold A. Lansing
Gaensbauer, Ferdinand Pontiac
Garipey, Bernard F. Royal Oak
Gatley, C. R. Pontiac
Gatley, L. Warren Pontiac
Gehinger, Norman F. Pontiac
Geib, Ormond D. Rochester
Gerls, Frank B. Pontiac
Gill, Matthew J. Detroit
Gordon, J. H. Birmingham

Grant, William A. Milford
Green, William M. Pontiac
Halsted, Lee H. Farmington
Hammer, Carl W. Oxford
Hammonds, E. E. Birmingham
Harris, Landy E. Pontiac
Harvey, Campbell Pontiac
Hassberger, J. B. Birmingham
Hathaway, Clarence L. Lake Orion
Hathaway, William Rochester
Henry, Colonel R. Ferndale
Hensley, C. B. Lake Orion
Howlett, E. V. Pontiac
*Hoyt, Donald F. Pontiac
*Hubert, John R. Seward, Alaska
Huffman, M. R. Milford
Hume, T. W. K. Auburn Heights
Hurst, Daniel D. Pleasant Ridge
Hutchinson, Wm. G. Pontiac
Jones, Morrell M. Drayton Plains
Kemp, Felix J. Pontiac
Kemp, W. Lloyd Birmingham
Kimball, A. S. Pontiac
Kirkup, Norman N. Hazel Park
Lambie, John S. Pontiac
Lambert, Alvin Gerald Ferndale
Larson, B. T. Pontiac
Lass, E. H. Oxford
Lawler, C. F. Birmingham
Lewis, Sol M. Ferndale
Little, J. W. Pontiac
Lockwood, C. E. Holly
MacInnis, Francis Pontiac
MacKenzie, O. R. Walled Lake
Margrave, Edmund D. Royal Oak
Markley, John Martin Pontiac
Mason, Robert J. Birmingham
McConkie, J. P. Birmingham
McNeill, H. H. Pontiac
Meinke, Herman A. Hazel Park
Mercer, Frank A. Pontiac
Mitchell, B. M. Pontiac
Monroe, J. D. Pontiac
Mooney, C. A. Ferndale
Moosman, D. A. Pontiac
Neafie, Charles A. Pontiac
Needle, Francis Pontiac
Newcomb, Arnold B. Berkley
Norup, John Berkley

Nosanchuk, Joseph Pontiac
Ohlmacher, A. P. Royal Oak
*Olsen, Richard E. San Francisco, Calif.
Osgood, S. W. Clawson
Pauli, Theodore H. Pontiac
Pelletier, Charles J. Hazel Park
Pool, H. H. Pontiac
*Porritt, Ross J. Camp Forrest, Tenn.
Prevette, Isaac C. Pontiac
Raynald, George P. Birmingham
Reid, Fred T. Clawson
Rennell, E. J. Pontiac
Riker, Aaron D. Pontiac
Roehm, Harold R. Birmingham
Rowley, Laurie G. Drayton Plains
Rupp, Jacob R. Davisburg
St. John, Harold A. Pontiac
Schlecte, Carl Rochester
Schlecte, Eve M. Rochester
Schoenfeld, John B. Birmingham
Schuneman, Howard Ferndale
Seaborn, A. J. Royal Oak
Sibley, H. A. Pontiac
Simpson, E. K. Pontiac
Smith, Carleton A. Pontiac
*Smith, Donald S. Pontiac
Smith, Ellen Pontiac
Spears, M. L. Pontiac
Spencer, Lloyd H. Royal Oak
Spoehr, Eugene L. Ferndale
Spohn, Earl W. Royal Oak
Stahl, Harold F. Oxford
Starker, Clarence T. Pontiac
Steinberg, Norman Royal Oak
Stolpmann, A. K. Birmingham
Sutton, Palmer E. Royal Oak
Terry, Stuart Pontiac
Tuck, Raymond G. Pontiac
Uloth, Milton J. Ortonville
Vatz, Jack A. Pontiac
*Wagley, P. V. Milwaukee, Wis.
Wagner, Ruth E. Royal Oak
Watson, Thomas Y. Birmingham
*Wentz, A. E. Bloomfield Hills
Wilbur, Cornelia Pontiac
Yoh, Harry B. Clarkston
Young, Arthur R. Pontiac

Oceana County

Day, Clinton Hart
Flint, Charles Hart
Hayton, A. R. Shelby
Heard, William Pentwater

Heysett, Norman W. Naperville, Ill.
Jensen, Viggo Shelby
Lemke, Walter M. Shelby
Munger, L. P. Hart

Nicholson, John H. Hart
Reetz, Fred A. Shelby
Robinson, W. Gordon Hart
Wood, Merle G. Hart

ROSTER

Ontonagon County

Bender, Jesse L. Mass
Evans, Edwin J. Ontonagon
Hogue, H. B. Ewen

Pinkerton, W. J. Ontonagon
*Rubinfeld, S. H. Coleman, Texas
Shale, R. J. Ontonagon

Strong, W. F. Ontonagon
Whiteshield, C. F. Trout Creek

Ottawa County

*Bloemendaal, D. C. Fort Custer
Bloemendal, W. B. Grand Haven
Boone, Cornelius E. Zeeland
Cook, Carl S. Holland
De Witt, S. L. Grand Haven
*Harms, H. P. San Diego, Calif.
Irvin, Harry C. Holland
Kemme, Gerrit. Zeeland

Kools, William Clarence Holland
Leenhouts, Abraham. Holland
Long, C. E. Grand Haven
Nichols, Rudolph H. Holland
Nykamp, Russell. Zeeland
Presley, William J. Grand Haven
Tappan, W. M. Holland

Ten Have, Ralph. Grand Haven
Ver Duin, J. Grand Haven
Van Der Berg, E. Holland
Van der Velde, O. Holland
Wells, Kenneth. Spring Lake
Westrate, William. Holland
Winter, John K. Holland
Winter, William G. Holland

Saginaw County

Ackerman, Gerald L. Saginaw
Anderson, Wm. K. Saginaw
Bagley, U. S. Saginaw
Bagshaw, David E. Saginaw
Berberovich, T. F. Saginaw
Bishop, H. M. Saginaw
Brender, Fred P. Frankenmuth
Brock, W. H. Saginaw
Bruton, Martin F. Saginaw
Busch, Frank J. Saginaw
Butler, M. G. Saginaw
Button, A. C. Saginaw
Cady, F. J. Saginaw
Calomeni, Anthony D. Lansing
Cameron, Allen K. Saginaw
Campbell, L. A. Saginaw
Chisena, Peter R. Bridgeport
Clark, Wilbert B. Saginaw
Claytor, Archer A. Saginaw
Cortopassi, Andre. Saginaw
*Cortopassi, V. E.
..... Camp Yulick, Panama
Cory, C. W. Saginaw
Curts, James. Saginaw
Durman, Donald C. Saginaw
Ely, C. W. Saginaw
Ernst, Arthur R. Saginaw
Eymmer, Esther. Saginaw
Fleschner, Thomas E. Birch Run
Gage, David P. Saginaw
Galsterer, Edwin C. Saginaw
Gerber, Herbert. Saginaw
Gomon, Louis D. Saginaw
Grigg, Arthur. Saginaw
Grigg, Arthur P. Saginaw

Hand, Eugene Saginaw
Harvie, L. C. Saginaw
Helmkamp, Herbert C. Saginaw
Hester, E. G. Saginaw
Hill, Victor L. Saginaw
Hohn, Fred J. Saginaw
*Immerman, Harold M. Far East
Jaenichen, R. Saginaw
James, John W. Saginaw
Jiroch, R. S. Saginaw
Jordan, Leo A. Saginaw
Keller, S. S. Saginaw
Kemp, J. M. Saginaw
Kempton, R. M. Saginaw
Kerr, Wm. Saginaw
Kirchgeorg, Clemens G. Frankenmuth
Kleekamp, H. G. Saginaw
Knott, Harriet A. Saginaw
Kowals, F. V. Saginaw
Ling, Ernest M. Hemlock
Lohr, O. W. Saginaw
Longstreet, Martha L. Saginaw
Luger, F. E. Saginaw
*Lurie, Robert Address Unknown
MacMeekin, James Ware. Saginaw
Markey, Joseph. Saginaw
Martzowka, William P. Saginaw
Maurer, John A. Saginaw
McClinton, N. F. Saginaw
McGregor, R. Saginaw
McKinney, Alex. R. Saginaw
McLandress, Joshua A. Saginaw
Meyer, Henry J. Saginaw
Moon, A. R. Saginaw

*Mudd, Richard D.
..... Duncan Field, Texas
Murphy, Albert P. Saginaw
*Murray, Charles R. Saginaw
Nicholas, Mildred. Saginaw
Novy, F. O. Saginaw
O'Reilly, William J. Saginaw
Ostrander, Frank W. Freeland
Phillips, Homer A. Saginaw
Pietz, Frederick. Saginaw
Pillsbury, Edward A. Frankenmuth
Poole, Frank A. Saginaw
Potvin, Clifford D. Saginaw
Richards, Ned R. Saginaw
Richter, Harry J. Saginaw
Ryan, M. D. Saginaw
Ryan, R. S. Saginaw
Sample, J. T. Saginaw
Sargent, D. V. Saginaw
Schaiberger, Elmer. Saginaw
Schneider, A. Saginaw
*Sheldon, S. A. New York City
Skowronski, Casimer A. Saginaw
*Slack, W. K. Saginaw
Stander, A. C. Saginaw
Stewart, George. Saginaw
Stiller, A. F. Saginaw
Stolz, Harold F. Saginaw
Thomas, Dale. Saginaw
Tiedke, G. E. Saginaw
Toshack, C. E. Saginaw
*Wallace, Herbert C.
..... Alexandria, Louisiana
Wilson, H. Roy. Saginaw
Yntema, S. Saginaw

Sanilac County

Blanchard, E. W. Deckerville
Cochran, Lewis E. Peck
Ellis, N. J. Crosswell
Gift, W. A. Marlette
Gordon, Vida H. Sandusky

Hart, R. K. Crosswell
Koch, D. Brown City
Learmont, H. H. Crosswell
McGuegle, K. T. Sandusky
Norgaard, Hal V. Marlette

Seager, M. Cole Brown City
Sobin, D. J. Carsonville
Tweedie, G. Evans Sandusky
Tweedie, S. Martin Sandusky
Webster, John C. Marlette

Shiawassee County

Alexander, Reuben G. Laingsburg
Arnold, Alfred L., Jr. Owosso
Arnold, A. L., Sr. Owosso
Backe, John C. Corunna
Brandel, J. M. Owosso
*Brown, Richard J.
..... Camp Douglas, Ga.
Buzzard, Walter D. Chesaning
Camper, T. E. Corunna
Carney, Edward J. Durand
Cramer, George L. G. Owosso

Crane, C. A. Corunna
Fillinger, W. B. Ovid
Greene, I. W. Owosso
Hoshal, Vern L. Durand
Hume, Arthur M. Owosso
Hume, Harold A. Owosso
Janci, Julius. Owosso
Kaufman, H. J. Owosso
Linden, V. E. Durand
*McKnight, E. R. Camp Grant, Ill.

Parker, W. T. Owosso
Pochert, R. C. Owosso
Richards, C. J. Durand
Shepherd, W. F. Owosso
Slagh, E. M. Elsie
Soule, Glenn T. Henderson
Watts, Fred A. Owosso
Weinkauf, W. F. Corunna
Weston, C. L. Owosso
Wilcox, Anna L. Owosso
Wilcox, C. M. Owosso

St. Clair County

Armsbury, A. B. Marine City
Atkinson, J. M. Port Huron
Attridge, J. A. Port Huron
Banting, K. C. Port Huron
Battley, J. C. Sinclair. Port Huron
Beck, Frank K. Port Huron
Bigger, R. J. Port Huron
Borden, C. L. Yale

Boughner, W. H. Algonac
Bovee, M. E. Port Huron
Brush, Howard O. Port Huron
Burke, Ralph M. Port Huron
Burlay, Jacob H. Port Huron
Callery, A. L. Port Huron
Campbell, R. H. St. Clair
Carey, Lewis M. Detroit

Carney, F. V. St. Clair
Clyne, B. C. Yale
Cooper, T. H. Port Huron
DeGurse, T. E. Marine City
Derck, W. P. Marysville
Falk, Edwin Carl. Algonac
Fraser, Robert C. Port Huron
Hall, W. E. B. Port Huron

ROSTER

Heavenrich, Theodore F. Port Huron
Holcomb, R. J. Marine City
Kest, George Matthew Port Huron
Le Galley, K. B. Port Huron
Licker, R. R. Port Huron
Ludwig, F. E. Port Huron
McCue, Christopher Goodells
MacPherson, C. A. St. Clair
Martin, C. S. Port Huron
McColl, D. J. Port Huron

McColl, Neil J. Port Huron
Meredith, E. W. Port Huron
Patterson, D. Webster Port Huron
Pollock, Donald A. Yale
Reynolds, Annie E. Port Huron
Ryerson, W. W. Port Huron
Searles, Karl F. Capac
Schaefer, W. A. Port Huron
Sites, E. C. Port Huron
Thomas, C. F. Port Huron

Treadgold, Douglas Port Huron
Vroman, M. E. Port Huron
Waltz, J. F. Capac
Ware, John R. Port Huron
Wass, Henry C. St. Clair
Waters, George Port Huron
Wellman, Joseph E. Port Huron
Wight, William G. Yale
Witter, Gordon L. Port Huron
Zemmer, A. L. Port Huron

St. Joseph County

Berg, Lawrence A. Centerville
Brunson, A. E. Colon
*Buell, Martin Bethesda, Md.
Dodrill, F. D. Three Rivers
Fiegel, S. A. Sturgis
Fortner, R. J. Three Rivers
Hoekman, Aben Constantine

Holm, Arvid G. Three Rivers
Kane, David M. Sturgis
Miller, C. G. Sturgis
Parrish, Marion F. Sturgis
Raich, Fred J. White Pigeon
Reed, Fred R. Three Rivers
*Rice, John W. Chicago, Ill.

Shaw, G. D. Mendon
Sheldon, J. P. Sturgis
Slote, L. K. Constantine
Springer, R. A. Centerville
Sweetland, G. J. Constantine
Wilkerson, Nina C. Sturgis
Zimont, R. D. Constantine

Tuscola County

Barbour, Harry A. Mayville
Bates, George Kingston
Berman, Harry Millington
Cook, George Harvey Caro
Cook, Raymond Akron
Dickerson, Willard W. Caro
Dixon, Robert L. Caro
Donahue, H. Theron Cass City
*Fisher, Robert E. Tombstone, Ariz.
Flett, Richard O. Millington

Fox, Denton B. Caro
*Gugino, Frank James
..... Great Lakes, Ill.
*Hoffman, T. E. Chicago, Ill.
Howlett, R. R. Caro
Johnson, O. G. Mayville
Kaven, G. H. Unionville
MacRae, L. D. Gageton
Merrill, Elmer H. Caro
Morris, Frank L. Cass City

Rundell, Annie Stevens Vassar
Ruskin, D. B. Caro
Savage, Lloyd L. Caro
Shoemaker, J. Vassar
Spohn, U. G. Fairgrove
Starmann, Bernard Cass City
Swanson, E. C. Vassar
*Vail, Harry F. Sheppard Field, Texas
Von Renner, Otto Vassar
Zonnis, Marian E. Caro

Van Buren County

*Boothby, Carl F. Lawrence
Boothby, F. M. Lawrence
Bope, William P. Decatur
Buckborough, M. W. South Haven
French, Merle R. Paw Paw
Gano, Avison Bangor
*Giddings, Ralph R. Bloomingdale
Giffen, John R. Bangor
Greenman, Newton H. Decatur
Hall, E. J. Hartford

Hasty, W. A. Gobles
Hoyt, W. F. Paw Paw
Iseman, Joseph W. Paw Paw
Itzen, J. F. South Haven
Laird, Emma Paw Paw
Lowe, Edwin G. Bangor
Marcovich, A. W. Paw Paw
Maxwell, J. Charles Paw Paw
McNabb, A. A. Lawrence
Murphy, Norman D. Bangor

Penoyar, C. L. South Haven
Sayre, Phillip P. South Haven
Spalding, R. W. Gobles
Steele, Arthur H. Paw Paw
TenHouten, Charles Paw Paw
*Terwilliger, Edwin
..... Camp Bowie, Texas
Urist, Martin South Haven
Williams, F. N. Hartford
Young, William R. Lawton

Washtenaw County

*Agate, George H. Atlanta, Ga.
Alexander, John Ann Arbor
Badgley, C. E. Ann Arbor
Barker, Paul Ann Arbor
Barnes, Allan C. Ann Arbor
Barnwell, John B. Ann Arbor
Barr, A. S. Ann Arbor
Barss, Harold D. Ypsilanti
Bassow, Paul H. Ann Arbor
Baugh, R. H. Milan
Beebe, Hugh M. Ann Arbor
Bell, Margaret Ann Arbor
Belsor, Walter Ann Arbor
Bethel, Frank Hartstuff Ann Arbor
*Blair, Thomas H. Fort Custer
Brace, William M. Ann Arbor
Breakey, J. F. Ann Arbor
Breakey, James R. Ypsilanti
Britton, H. B. Ypsilanti
Brown, Phillip Ypsilanti
Bruce, James D. Ann Arbor
*Bulmer, Dan J. Ann Arbor
Burge, Curtis H. Ann Arbor
*Buscaglia, C. J. Iceland
Camp, Carl Dudley Ann Arbor
Clements, Glenn T. Ann Arbor
Coller, Frederick A. Ann Arbor
*Conger, Kyril B. Ann Arbor
Conn, Jerome W. Ann Arbor
Cooper, Ralph R. Ann Arbor
Coxon, Alfred W. Ann Arbor
Cummings, H. H. Ann Arbor
Curtis, Arthur C. Ann Arbor
*Davis, Fenimore E. Indianapolis, Ind.
Day, A. Jackson Ann Arbor
De Jong, Russell Ann Arbor
DeRyke, Gilbert R. Ann Arbor
De Tar, John S. Milan
Dingman, Reed O. Ann Arbor
Donaldson, S. W. Ann Arbor
*Dowman, Charles E. Atlanta, Ga.
Duff, Ivan F. Ann Arbor
Dunstone, H. C. Ypsilanti
Emerson, Herbert W. Ann Arbor
Engelke, Otto K. Ann Arbor
Everett, Meldon Ann Arbor

Failing, Joseph H. Ann Arbor
Falls, Harold F. Ann Arbor
Farris, Jack M. Ann Arbor
Field, Henry, Jr. Ann Arbor
Fitzgerald, Thomas D. Ann Arbor
Folsome, Clair E. Tenafly, N. J.
Forsythe, Warren E. Ann Arbor
Foster, D. Bernard Ann Arbor
Fralick, F. Bruce Ann Arbor
Freyberg, Richard H. Ann Arbor
Frye, Carl H. Ann Arbor
Furstenberg, Albert C. Ann Arbor
Ganzhorn, Edwin Ann Arbor
Gardiner, Sprague Baltimore, Md.
Gates, John L. Ann Arbor
Gates, Neil A. Ann Arbor
German, James W. Akron, Ohio
Green, Mervin E. Ann Arbor
Gulde, Andros Chelsea
Hagerman, George W. Ann Arbor
Haight, Cameron Ann Arbor
Hammond, George Ann Arbor
Hammond, W. W. Plymouth
Hannum, M. R. Milan
Harris, Bradley M. Ypsilanti
Haynes, Harley A. Ann Arbor
Healey, Claire E. Ann Arbor
Henry, L. Dell Ann Arbor
Himler, Leonard E. Ann Arbor
Hodges, Fred J. Ann Arbor
Holt, John F. Ann Arbor
Howard, S. C. Ann Arbor
Howes, Homer A. Ann Arbor
Jimenez, Buenaventura Ann Arbor
Johnson, Lester J. Ann Arbor
Johnson, Vincent C. Ann Arbor
Johnston, Franklin D. Ann Arbor
*Jordan, Paul H. Charleston, S. C.
Juraw, Harry N. Ann Arbor
Kahn, Edgar A. Ann Arbor
Keller, Arthur P. Ann Arbor
Kemper, J. W. Ann Arbor
Kennedy, John Ann Arbor
Kleinschmidt, Earl E. Elmhurst
Kleinschmidt, Gladys Elmhurst, Ill.

Klingman, Theophil Ann Arbor
Knoll, Leo Ann Arbor
Kretzschmar, Norman R. Ann Arbor
La Fever, Sidney L. Ann Arbor
Lampe, Isadore Ann Arbor
Law, John L. Ann Arbor
Levin, Manuel Ann Arbor
Lichty, Dorman E. Ann Arbor
List, Carl F. Ann Arbor
Logie, James W. Ann Arbor
*Lowell, Vivion F. Ypsilanti
Lynn, Harold P. Ypsilanti
Mackenzie, Aileen Mc. Ann Arbor
Malcolm, Karl D. Ann Arbor
Marshall, Mark Ann Arbor
Martin, Donald W. Ypsilanti
Maxwell, James H. Ann Arbor
McCotter, Rollo E. Ann Arbor
McEachern, Thomas H. Ann Arbor
McKhan, Chas F. Ann Arbor
Metzger, Ida Ypsilanti
Milford, Albert F. Ypsilanti
*Miller, Harold San Francisco, Calif.
Miller, Norman F. Ann Arbor
Mollin, Edwin L. Ann Arbor
*Moore, Donald F. Galveston, Texas
Muehlig, Geo. F. Ann Arbor
Myers, Dean W. Ann Arbor
Nesbit, Reed M. Ann Arbor
Newburgh, Louis H. Ann Arbor
Northrup, Robert O. Ann Arbor
Oliphant, L. W. Ann Arbor
Palmer, A. A. Chelsea
Parsons, Robert Jerome Ann Arbor
Patterson, Ralph M. Ann Arbor
Peet, Max Ann Arbor
Peterson, Reuben Duxbury, Mass.
Pillsbury, Charles B. Ypsilanti
Pollard, H. M. Ann Arbor
*Power, Frank H. Panama Canal Zone
Price, Helen F. Ann Arbor
Prout, Gordon J. Saline
Quirk, Edmund J. Chelsea

ROSTER

*Rague, Paul O.....Fort Custer
Ransom, Henry.....Ann Arbor
Raphael, Theophile.....Ann Arbor
Ratcliff, Rigdon K.....Ann Arbor
*Reynolds, Stephen.....Santa Barbara, Calif.
*Richardson, Geo A.....Great Lakes, Ill.
Riecker, Herman H.....Ann Arbor
Riggs, Harold W.....Ann Arbor
Robb, David N.....Ypsilanti
Rosenbaum, Francis F.....Ann Arbor
Ross, C. Howard.....Ann Arbor
Sacks, Wilma.....Ann Arbor
Salon, Dayton D.....Ann Arbor
Schumacher, W. E.....Ann Arbor
Scott, Wm. C.....Ann Arbor
Scurry, Maurice.....Ann Arbor

Seevers, Maurice H.....Ann Arbor
Seime, Reuben I.....Whitmore Lake
Sibbald, Malcolm L.....Chelsea
Sink, Emory W.....Ann Arbor
Slasor, Wm. J.....Ann Arbor
Smalley, Marianna.....Ann Arbor
Smith, Joseph G.....Ann Arbor
Snow, Glenadine.....Ypsilanti
Solis, Jeanne C.....Ann Arbor
Soller, M. E.....Ypsilanti
Steiner, L. G.....Ann Arbor
Sturgis, Cyrus C.....Ann Arbor
Sundwall, John.....Ann Arbor
Teed, Reed Wallace.....Ann Arbor
Thieme, E. Thurston.....Ann Arbor
Towsley, Harry A.....Ann Arbor
Vander Slice, David.....Ann Arbor

Waggoner, R. W.....Ann Arbor
*Waldron, Alexander M.....Santa Barbara, Calif.
Wanstrom, Ruth C.....Ann Arbor
Washburne, Charles L.....Ann Arbor
Weller, Carl V.....Ann Arbor
Wessinger, J. A.....Ann Arbor
Wile, Udo J.....Ann Arbor
Williamson, F. B.....Ypsilanti
Wilson, Frank N.....Ann Arbor
Wisdom, Inez.....Ann Arbor
Woods, J. J.....Ypsilanti
Worth, Melissa H.....Ypsilanti
Wright, Walter J.....Ypsilanti
Wylie, William C.....Dexter
Yoder, O. R.....Ypsilanti

Wayne County

Aaron, Chas. D.....Detroit
Abrams, Harry M.....Detroit
Abramson, Max.....Detroit
*Adelson, Sidney L.....Langley Field, Va.
Adler, Leopold.....Detroit
*Adler, Sidney.....San Diego, Calif.
Aguins, Jacob.....Detroit
Agnelly, Edward J.....Detroit
Agnew, George H.....Detroit
Albrecht, Herman F.....Detroit
Aldrich, E. Gordon.....Detroit
Aldrich, Napier S.....Detroit
Alford, E. S.....Belleville
Allen, John V.....Lincoln Park
Allen, Norman M.....Detroit
Alles, Russell W.....Detroit
Allison, Frank B.....Detroit
Allison, Herbert C.....Detroit
Altman, Raphael.....Detroit
Altshuler, Ira M.....Detroit
Altshuler, Samuel S.....Detroit
Amberg, Emil.....Detroit
Amos, Thomas G.....Detroit
Anderson, Bruce.....Detroit
Anderson, Gordon H.....Detroit
Anderson, J. O.....Detroit
Anderson, Walter L.....Detroit
Anderson, Walter T.....Detroit
Andries, Joseph H.....Detroit
Andries, Raymond C.....Detroit
Ankley, J. W.....Detroit
Anslow, Robert E.....Detroit
Appel, Phillip R.....Detroit
*Appelman, H. B.....Fort Custer
Arehart, Burke W.....Detroit
Armstrong, Arthur G.....Detroit
Armstrong, Oscar S.....Detroit
Arnold, Effie.....Detroit
Aronstam, Noah E.....Detroit
Ascher, Meyer S.....Detroit
Ashe, Stilson R.....Detroit
Ashley, L. Byron.....Detroit
Ashton, F. B.....Highland Park
Asselin, J. L.....Detroit
Asselin, Regis F.....Detroit
Atchison, Russell M.....Northville
Athay, Roland M.....Detroit
Atler, Lawrence R.....Detroit
Atler, Leroy.....Detroit
August, Harry E.....Detroit
Axelson, A. U.....Detroit
Babcock, Kenneth B.....Detroit
Babcock, L. K.....Detroit
Babcock, Myra E.....Detroit
Babcock, W. L.....Detroit
Babcock, W. W.....Detroit
Bach, Walter F.....Detroit
Bachman, Morris E.....Detroit
Bacon, Vinton A.....Detroit
Baef, Michael A.....Detroit
Baer, George J.....Detroit
Baer, Raymond B.....Detroit
Bagley, Harry E.....Dearborn
Bailey, Carl C.....Detroit
Bailey, Don A.....Detroit
Bailey, Louis J.....Detroit
Baker, Clarence.....Detroit
Baker, Howard B.....Detroit
Bakst, Joseph.....Detroit
Balaga, F. T.....Detroit
Balcerski, Matthew A.....Detroit
Ballard, Charles S.....Detroit
Balser, Charles W.....Detroit
Baltz, James L.....Detroit
Baranowski, A. W.....Dearborn
Barker, F. Marion.....Grosse Point
Barnes, Donald J.....Detroit
Barnett, Louis L.....Detroit
Barnett, Saul E.....Detroit
Barone, Chas. J.....Highland Park

Barrett, Wyman D.....Detroit
Bartemier, Leo H.....Detroit
Barton, J. R.....Detroit
Bates, Gaylord S.....Detroit
Bauer, A. Robert.....Detroit
Bauer, Benedict J.....Detroit
Bauer, Lester Eugene.....Detroit
Baumer, Moe.....Detroit
Baumgarten, Elden C.....Detroit
Bayles, John G.....Detroit
Beach, Watson.....Detroit
Beam, A. Duane.....Detroit
Beaton, Colin.....Detroit
Beattie, Robert.....Detroit
Beatty, S. M.....Detroit
Beaver, Donald C.....Detroit
Beck, Eva F.....Eloise
Beck, Harold A.....Detroit
Becker, Abraham.....Detroit
Becker, Joseph William.....Detroit
Becklein, C. L.....Detroit
Beckwith, M. C.....Rochester
Bedell, A.....Detroit
Beer, Jos.....Detroit
Beeuwkes, L. E.....Dearborn
Begle, Howell L.....Detroit
Behn, Claud W.....Detroit
Beigler, Sydney K.....Detroit
Belanger, Ernest E.....River Rouge
Belanger, Henry.....Detroit
Belknap, Warren F.....Detroit
Bell, J. Kenner.....Detroit
Bell, William M.....Detroit
Bennett, Germany E.....Detroit
Bennett, Harry B.....Detroit
Benson, C. D.....Detroit
Benson, Davis A.....Detroit
Bentley, Neil I.....Detroit
*Beresh, Louis.....Romulus
Berge, Clarence A.....Detroit
Bergman, I. L.....Detroit
Bergo, Howard L.....Philadelphia, Pa.
Berke, Sydney S.....Detroit
Berkey, Wm. E.....Detroit
Berlien, Ivan C.....Detroit
Berent, Morris.....Detroit
Berman, Harry S.....Detroit
Berman, Lawrence.....Detroit
Berman, Robert.....Detroit
Berman, Sidney.....Detroit
Berman, Sidney.....Detroit
Bernard, Walter G.....Detroit
Bernbaum, Bernard.....Detroit
Bernstein, Albert E.....Detroit
Bernstein, Samuel S.....Detroit
Berry, Joseph E.....Detroit
Besancon, J. H.....Detroit
Best, T. H. Edward.....Detroit
Bicknell, Edgar A.....Detroit
Bicknell, Frank B.....Detroit
Bicknell, Nathan J.....Detroit
Biddle, Andrew P.....Detroit
Birch, John R.....Detroit
Birkelo, Carl C.....Detroit
Bittker, I. Irving.....Detroit
Black, Perry S.....Detroit
Blackford, Roger W.....Detroit
Blaess, Marvin J.....Detroit
Blain, Alex W., Jr.....Detroit
Blain, Jas. H., Jr.....Detroit
Blaine, Max.....Detroit
Blair, K. E.....Detroit
Blashill, James B.....Detroit
Bleier, Alfred.....Detroit
Bleier, Joseph.....Detroit
Bloch, Abraham.....Detroit
Blodgett, William E.....Detroit
Blodgett, Wm. H.....Detroit
Bloumer, Earl.....Dearborn
Blumenthal, Franz L.....Detroit
Roccaccio, John.....Detroit

Boccia, James J.....Detroit
Boddie, Arthur W.....Detroit
Boehm, John D.....Detroit
Boell, Arthur F.....Detroit
Bohn, Stephen.....Detroit
Boileau, Thornton I.....Detroit
Boland, J. Rolland.....Detroit
Boles, A. E.....Detroit
Bookmyer, Ralph H.....Detroit
Bookstein, Abraham M.....Detroit
Bovill, Edwin G.....Detroit
Bower, Franklin T.....Detroit
Bowers, Leo J.....Detroit
Bowman, Frank E.....Detroit
Boyd, John H.....Trenton
Brachman, D. S.....Detroit
Bracken, Andrew H.....Dearborn
Bradshaw, William H.....Detroit
Braitman, Louis.....Detroit
Braley, William N.....Detroit
Bramigk, Fritz W.....Detroit
Branchau, L. T.....Vassar
Brando, Russell G.....Detroit
Brandt, Edward L.....Detroit
Braun, Lionel.....Detroit
Breitenbecher, Edward R.....Detroit
Bregle, Deane R.....Detroit
Breon, Guy L.....Detroit
Briegel, Walter A.....Detroit
Brines, O. A.....Detroit
Bringard, Elmer L.....Detroit
Brisbois, Harold J.....Plymouth
Brodersen, Harvey S.....River Rouge
Bromme, William.....Detroit
Brooks, A. L.....Detroit
Brooks, Clark D.....Detroit
Brooks, Charles W.....Detroit
Brooks, Nathan.....Detroit
Brosius, William L.....Detroit
Broudo, Philip H.....Detroit
Brown, A. O.....Detroit
Brown, Carlton F.....Detroit
Brown, G. T.....Detroit
Brown, Harvey F.....Detroit
Brown, Henry S.....Detroit
*Brown, J. R.....Great Lakes, Ill.
Brown, Stanley H.....Detroit
Brown, Thomas A.....Detroit
*Brownell, Paul G.....Fort Jackson, S. C.
Bruehle, Richard A.....Detroit
Brundage, Richard M.....Detroit
Brunk, Andrew S.....Detroit
Brunk, C. F.....Detroit
Brunke, Bruno B.....Detroit
Brush, Brock Edwin.....Detroit
Bryce, John D.....Detroit
Buchanan, W. Paul.....Detroit
Buchner, Harold W.....Detroit
Budson, Daniel.....Detroit
Buell, Charles E., Jr.....Detroit
Burrows, Howard A.....Dearborn
Burstein, I. Marvin.....Detroit
Burstein, Morris M.....Detroit
Burstein, Harry S.....Detroit
Buesser, Frederick G.....Detroit
Buller, H. L.....Detroit
Burgess, Charles M.....Detroit
Burgess, Jay M.....Detroit
Burns, Robert T.....Detroit
Burnstine, Julius Y.....Detroit
Burnstine, Perry P.....Detroit
Burr, George C.....Detroit
Burr, H. Leonard.....Detroit
Burton, D. T.....Detroit
*Bush, Glendon J.....Wichita Falls, Texas
Bush, Lowell M.....Detroit
Buss, John A.....Detroit
Butler, Harry J.....Detroit
Butler, L. H.....Detroit
Butler, Volney N.....Detroit

ROSTER

Butterworth, Herman K...Lincoln Park
Buttram, Edward J.....Detroit
Byers, Dudley W.....Detroit
Byington, Garner M.....Detroit

Cadieux, Henry W.....Detroit
Caldwell, J. Ewart.....Detroit
Calkins, H. N.....Detroit
Callaghan, T. T.....Detroit
Cameron, A. H.....Wyandotte
Campau, George H.....Detroit
Campbell, Don M.....Detroit
Campbell, Duncan.....Detroit
Campbell, Duncan A.....Detroit
Campbell, Malcolm D.....Detroit
Campbell, Mary B.....Detroit
Candler, Clarence L.....Detroit
Canter, Allie E.....Detroit
Canter, Gayle E.....Detroit
*Caplan, Leslie.....Grider Field, Ark.
Caraway, James E.....Wayne
Carey, Cornelius.....Detroit
Carleton, L. H.....Detroit
Carlson, Harold W.....Detroit
Carlucci, P.....Detroit
Carmichael, E. K.....Detroit
Carnes, Harry.....Detroit
Carp, Joseph.....Detroit
Carpenter, C. H.....Detroit
Carpenter, C. J.....Detroit
Carpenter, Glenn B.....Detroit
Carr, J. G.....Detroit
Carroll, E. H.....Detroit
Carroll, Lona B.....Detroit
Carson, Herman J.....Detroit
Carstens, Henry R.....Detroit
Carter, John M.....Detroit
Carter, L. F.....Detroit
Cassidy, William J.....Detroit
Castrop, C. W.....Dearborn
*Cathcart, Edward A.....

Great Lakes, Ill.
Catherwood, Albert E.....Detroit
*Cavell, Roscoe W.....Detroit
Cetlinski, C. A.....Hamtramck
Chalat, Jacob H.....Detroit
Chall, Henry G.....Detroit
Chance, J. H.....Detroit
Chapman, Aaron L.....Detroit
Chapman, Everett L.....Detroit
Chapman, Paul T.....Detroit
Chapnick, H. A.....Detroit
Chase, Clyde H.....Detroit
Chatel, Arthur N.....Detroit
Chene, George C.....Detroit
Chenik, Ferdinand.....Detroit
Chester, W. P.....Detroit
Chesluk, H. M.....Detroit
Chipman, W. A.....Detroit
Chittenden, George E.....Detroit
Chittick, William R...San Diego, Calif.
Chostner, G. C.....Detroit
Christensen, C. A.....Dearborn
Christopoulos, D. G.....Detroit
Chrouch, Laurence A.....Detroit
Ciprian, Joseph E.....Detroit
Clapper, Muir.....Detroit
Clark, Benjamin W.....Detroit
Clark, C. M.....Detroit
Clark, Donald K.....Dearborn
Clark, Donald V.....Detroit
Clark, George E.....Detroit
Clark, Harold E.....Detroit
Clark, Harry G.....Detroit
Clark, Harry L.....Detroit
Clark, Raymond L.....Detroit
Clarke, Daniel.....Detroit
Clarke, Emilie Arnold.....Detroit
Clarke, George L.....Detroit
*Clarke, Niles A.....

Camp Beauregard, La.
Clarke, Norman E.....Detroit
Clifford, Charles H.....Detroit
Clifford, John E.....Detroit
Clifford, T. P.....Detroit
*Clifford, T. P.....Great Lakes, Ill.
Clippert, J. C.....Grosse Ile
Coan, Glenn L.....Wyandotte
Coates, Carl Amos.....Dearborn
Cobane, John H.....Detroit
Cochrane, Edgar G.....Detroit
Cohn, Daniel E.....Detroit
Cohoe, Don A.....Detroit
Cole, Fred H.....Detroit
Cole, James E.....Detroit
Cole, Wyman C. C.....Detroit
Coleman, Margaret W.....Detroit
Coleman, Wm. G.....Detroit
Coll, Howard R.....Detroit
Collings, M. Raymond.....Detroit
Collins, Edmund F.....Detroit
Colyer, Raymond G.....Detroit
Conley, L. C. M.....Detroit
Connelly, Basil L.....Detroit

Connelly, Richard C.....Detroit
Connolly, Frank.....Detroit
Connolly, John P.....Detroit
Connor, Guy L.....Detroit
Connors, J. J.....Detroit
Conrad, E. R.....Detroit
Cooksey, Warren B.....Detroit
Cooley, Thomas B.....Detroit
Coolidge, Maria Belle..Grosse Pt. Park
Cooper, E. L.....Detroit
Cooper, James B.....Detroit
Corbeille, Catherine.....Detroit
Corbett, John J.....Detroit
Coseglia, Robert P.....Detroit
Costello, Russell T.....Detroit
Cotruo, L. D.....Detroit
Coucke, Henry O.....Detroit
Coulter, William J.....Detroit
Cowan, Angus L.....Detroit
Cowan, Wilfrid.....Detroit
Cowen, Leon B.....Detroit
Cowen, Robert L.....Detroit
Coynce, Douglas Ruthven.....Detroit
Craig, Henry R.....Eloise
Crane, L. T.....Detroit
Crawford, Albert S.....Detroit
Cree, Walter J.....Detroit
Crews, Thomas H.....Detroit
Croll, L. J.....Detroit
Cross, Harold E.....Detroit
Crossen, Henry F.....Detroit
Croushore, J. E.....Detroit
Cruikshank, Alexander.....Detroit
Curhan, Joseph H.....Detroit
Curry, F. S.....Detroit
Curtis, Frank E.....Detroit
Cushing, Russell G.....Detroit
Cushman, H. P.....Detroit

*Dana, Harold M.....Fort Custer
Danforth, J. C.....Detroit
Danforth, Mortimer E.....Detroit
Darling, Milton A.....Detroit
Darpin, Peter H.....Detroit
Davidson, Harry O.....Detroit
Davies, Thomas S.....Detroit
Davies, Windsor S.....Detroit
Davis, Egbert F.....Detroit
Davis, George H.....Detroit
*Davis, Linden Lee.....Fort Lewis, Wash.
Dawson, F. E.....Detroit
Dawson, W. A.....Dearborn
Day, J. Claude.....Detroit
Defever, Cyril R.....Detroit
Defnet, William A.....Detroit
*DeGroat, Albert.....Fort Custer
DeHoratius, Joseph.....Detroit
DeJongh, Edwin.....Detroit
Demaray, John F.....Detroit
Dempster, James H.....Detroit
DeNike, A. James.....Detroit
Denis, George M.....Detroit
Denison, Louis L.....Detroit
Derby, Arthur P.....Detroit
Derleth, Paul E.....Detroit
DeTomas, Rome.....Detroit
Dibble, Harry F.....Detroit
*Dickman, Harry M.....Camp Forrest, Tenn.
Dickson, B. R.....Detroit
Diebel, Nelson W.....Detroit
Diebel, William H.....Detroit
Dietzel, H. O.....Detroit
Dill, Hugh L.....Detroit
Dill, J. Lewis.....Detroit
Dillard, Malcolm.....Detroit
*DiLoreto, Panfilo C.....Fort Custer, Mich.

Dittmer, Edwin.....Detroit
Dixon, Fred W.....Dearborn
Dixon, Ray S.....Detroit
Dodds, John C.....Detroit
Dodenhoff, C. F.....Detroit
Doerr, Louis E.....Detroit
Dolega, Stanley F.....Detroit
Domzalski, C. A.....Detroit
Donald, Douglas.....Detroit
Donald, William M.....Detroit
Donovan, John D.....Detroit
Dorsey, John M.....Detroit
Doty, Chester A.....Detroit
Doub, Howard P.....Detroit
Douglas, Bruce H.....Detroit
Douglas, Clair L.....Detroit
Dovitz, Benjamin W.....Detroit
Dow, Roy E.....Detroit
Dowdle, Edward.....Detroit
Dowling, Harvey E.....Detroit
Dowling, Pearl Christie.....Detroit
Downer, Ira G.....Detroit
Doyle, George H.....Detroit
Drake, James J.....Detroit

Drews, Robert S.....Detroit
Drinkhaus, Harold.....Detroit
Drolshagen, E. A.....Detroit
Droock, Victor.....Detroit
Drummond, Donald L.....Detroit
Dubnove, Aaron.....Detroit
DuBois, Paul W.....Detroit
Dubpernell, Karl.....Detroit
Dubpernell, Martin S.....Detroit
Ducey, Edward F.....Detroit
Duffy, Edward A.....Detroit
Dundas, E. M.....Detroit
Dunlap, Henry A.....Detroit
Dunlap, Samson F.....Detroit
Dunn, Cornelius E.....Detroit
Durocher, Edmund J.....Ecorse
Durocher, Normand E.....Detroit
Dutchess, Charles E.....Detroit
Dwaihy, Paul.....Detroit
Dwyer, Francis.....Detroit
Dysarz, T. T.....Detroit
Dziuba, John F.....Detroit

Eades, Charles C.....Detroit
Eakins, Frederick J.....Dearborn
Eaton, Crosby D.....Detroit
Eder, Joseph R.....Detroit
Eder, Samuel J.....Detroit
Edgar, Irving I.....Detroit
Edgar, Russell G.....Detroit
Edwards, J. W.....Detroit
Eisman, Clarence H.....Detroit
Elliott, William G.....Detroit
Ellis, Seth W.....Detroit
Elvidge, Robert J.....Detroit
Emmert, Herman C.....Detroit
Engel, Earl H.....Wyandotte
Engel, John B.....Detroit
Ensign, Dwight C.....Detroit
Ensing, Osborn.....Detroit
Epstein, S. G.....Detroit
Erickson, Milton H.....Eloise
Erkfitz, Arthur W.....Detroit
Erman, Joseph M.....Detroit
Eschbach, Joseph W.....Dearborn
Estabrook, Bert U.....Detroit
Ettinger, Clayton J.....Detroit
Evans, Joseph M.....Detroit
Evans, Leland S.....Detroit
Evans, William A., Jr.....Detroit
Ewing, C. H.....Detroit
*Falick, Mordecai L.....

Fort Jackson, S. C.
Falk, Ira E.....Detroit
Fandrich, Theodore.....Detroit
Farbman, Aaron A.....Detroit
Farbman, Simon.....Detroit
Fauman, David H.....Detroit
Faunce, Sherman P.....Detroit
Fay, George E.....Detroit
Felcyn, W. George.....Detroit
Feldstein, Martin Z.....Detroit
Fellers, Ray L.....Detroit
Fellman, Abraham R.....Detroit
Fenech, Harold B.....Detroit
Fenner, Wm. A.....Detroit
Fenton, E. H.....Detroit
Fenton, Meryl M.....Detroit
Fenton, Russell F.....Detroit
Fenton, Stanley C.....Detroit
Ferguson, Franklin F.....Detroit
Ferrera, Louis V.....Detroit
Fettig, Carl A.....Detroit
Fine, Edward.....Detroit
Fischer, Frederick J.....Detroit
Fisher, Edward F.....Detroit
Fisher, George S.....Detroit
Fisher, O. O.....Detroit
Fisher, R. L.....Detroit
*Fitzgerald, E. W.....Toledo, Ohio
Fitzgerald, James M.....Detroit
Flaherty, H. J.....Detroit
Flaherty, N. W.....Detroit
Flaherty, S. A.....Detroit
Fleming, L. N.....Detroit
Flora, William R.....Detroit
Flower, J. A.....Detroit
Fogt, Herbert E.....Detroit
Fogt, Robert G.....Detroit
Foley, Hugh S.....Dearborn
Font, Anthony J.....Detroit
Foote, James A.....Lincoln Park
Ford, F. A.....Detroit
Ford, George A.....Detroit
Ford, Sylvester.....Detroit
Ford, Walter D.....Detroit
Fordell, F. S.....Detroit
Forrester, Alex V.....Detroit
*Forsythe, John R.....Waco, Texas
Foster, E. Bruce.....Detroit
Foster, Daniel P.....Detroit
Foster, Linus J.....Detroit

ROSTER

Foster, Owen C.....Detroit
 Foster, William L.....Detroit
 Foster, W. M.....Detroit
 Fraser, Harvey E.....Detroit
 Fraser, H. F.....Detroit
 Frazer, Mary Margaret.....Detroit
 Freedman, John.....Detroit
 Freedman, Milton.....Detroit
 Freeman, D. K.....Detroit
 Freeman, Mabel.....Detroit
 Freeman, Thelma.....Detroit
 Freeman, Wilmer.....Detroit
 Freese, John A.....Detroit
 Fremont, Joseph C.....Detroit
 Freund, Hugo A.....Detroit
 Fried, Bernard H.....Detroit
 Friedman, David.....Detroit
 Friedman, I. H.....Detroit
 *Friedlaender, Alex S.....Fort Custer
 *Frostic, Wm. D.....Sheppard Field, Texas
 Frothingham, George E.....Detroit
 Fuller, Hugh M.....Grosse Pointe
 Furey, Edward T.....Detroit

Gaba, Howard.....Detroit
 Gabe, Sigmund.....Detroit
 Gaberman, David B.....Detroit
 Galantowicz, H. C.....Detroit
 Galdonyi, Laslo L.....Detroit
 Galdonyi, N.....Centerline
 Galerneau, D. B.....Detroit
 Galvin, Paul P.....Detroit
 Gannan, Arthur.....Detroit
 Garipey, L. J.....Detroit
 Garner, H. B.....Detroit
 Gaston, Herbert B.....Detroit
 Gates, Nathaniel.....Detroit
 Gaynor, Alex.....Detroit
 Gehrke, August E.....Detroit
 Geib, Ledru O.....Detroit
 Geiter, Clyde W.....Detroit
 Geitz, William A.....Detroit
 Gellert, Isaac S.....Detroit
 Gemeroy, J. C.....Detroit
 George, A. W.....Detroit
 Gerondale, Elmond J.....Detroit
 Gibson, James C.....Detroit
 Gigante, Nicola.....Detroit
 Gignac, Arthur L.....Detroit
 Gilbert, Roy S.....Detroit
 Gillespie, Stephen M.....Dearborn
 Gillman, R. W.....Detroit
 Gingold, Samuel M.....Detroit
 Ginsberg, Harold I.....Detroit
 Gitlin, Charles.....Detroit
 Gittins, Perry C.....Detroit
 Glasgow, Gordon K.....Detroit
 Glassman, Samuel.....Detroit
 Glazer, Walter S.....Detroit
 Gleason, John E.....Detroit
 Glee, John L.....Grosse Pointe Farms
 Glick, M. J.....Detroit
 *Glickman, L. Grant.....Minneapolis, Minn.

Glowacki, B. F.....Detroit
 Gmeiner, Clarence C.....Detroit
 *Goetz, A. G.....Great Lakes, Ill.
 Goldberg, Arthur.....Detroit
 *Goldin, M. I.....Fort Custer
 Goldman, Perry.....Detroit
 Goldsmith, Joseph D.....Detroit
 Goldstone, R. R.....Detroit
 Gollman, Maurice D.....Detroit
 Gonne, William S.....Detroit
 Good, Wm. H.....Detroit
 *Goodrich, B. E.....Dearborn
 Goerke, Elmer A.....Romulus
 Gordon, John W.....Detroit
 Gordon, Whitlock J.....Detroit
 Gordon, William H.....Detroit
 *Gorelick, Martin J.....Camp Bowie, Texas
 Goring, Raymond P.....Detroit
 Gottschalk, Fred W.....Detroit
 Gould, S. Emanuel.....Eloise
 Goux, R. S.....Detroit
 Grace, Joseph M.....Eloise
 Graff, J. M.....Detroit
 Grain, Gerald O.....Detroit
 Grajewski, Leo E.....Detroit
 Granger, Francis L.....Detroit
 Grant, Heman E.....Detroit
 Gratton, Henri L.....Detroit
 Green, Ellis R.....Detroit
 Green, Lewis.....Detroit
 Green, Louis M.....Detroit
 *Green, Sydney H.....San Francisco
 Greenberg, Julius J.....Detroit
 *Greenberg, Morris Z.....Fort Custer
 Greene, John B.....Detroit
 Greenidge, Robert.....Detroit
 Greenlee, William Tate.....Detroit

Greiner, Bert A.....Detroit
 Grekin, Joseph.....Detroit
 Grekin, Samuel L.....Detroit
 Grimaldi, G. J.....Detroit
 Grob, Otto.....Detroit
 Gronow, A. A.....Detroit
 *Grossman, Sol C.....Kalamazoo
 Gruber, T. K.....Eloise
 Guimaraes, A. S.....Dearborn
 Gurdjian, E. S.....Detroit
 *Gutow, Benj. R.....Fort McClellan, Ala.

Hale, Arthur S.....Detroit
 Hall, Arche C.....Detroit
 Hall, E. Walter.....Detroit
 Hall, James A. J.....Detroit
 Hall, Ralph E.....Detroit
 Hall, Robert J.....Detroit
 Haluska, Joseph A.....Detroit
 H'Amada, Norman K.....Detroit
 Hamburger, A. C.....Detroit
 Hamil, Brenton M.....Detroit
 Hamilton, Norman C.....Detroit
 Hamilton, Stewart.....Detroit
 Hamilton, William.....Detroit
 Hamilton, William F.....Detroit
 Hammer, Charles A.....Detroit
 Hammer, Edwin J.....Detroit
 Hammer, Howard J.....Detroit
 Hammond, A. E.....Detroit
 Hammond, James L.....Inkster
 Hand, Fordus V.....Detroit
 *Hanna, Carl.....Camp Beauregard, La.
 Hanna, E. Howard.....Detroit
 Hanna, Samuel C.....Detroit
 Hansen, Frederick E.....Detroit
 Hanser, Joshua.....Detroit
 *Hanson, Frederick N.....Selfridge Field
 Hardstaff, R. John.....Detroit
 Hardy, George C.....Detroit
 Hareluk, E. W.....Detroit
 Harkins, Henry N.....Detroit
 Harley, Louis M.....Detroit
 Harm, W. B.....Detroit
 Harmon, Walter.....Detroit
 *Harper, Jesse T.....Fort Custer
 Harrell, Voss.....Detroit
 Harris, Harold H.....Detroit
 Harrison, Henry.....Detroit
 Harrison, Hugh.....Detroit
 Harrison, Wesley.....Detroit
 Hart, Charles E.....Detroit
 Hart, J. Clarence.....Detroit
 Hartgraves, Hallie.....Detroit
 Hartman, F. W.....Detroit
 Hartman, W. B.....Detroit
 Hartzell, John B.....Detroit
 Hasley, Clyde K.....Detroit
 Hasley, Daniel E.....Detroit
 Hasner, R. B.....Royal Oak
 Hastings, Orville J.....Detroit
 Hause, Glen E.....Detroit
 *Hauser, I. Jerome.....Springfield, Mo.
 Hauser, John E.....Detroit
 Hayers, Howard.....Detroit
 Hawken, William C.....Detroit
 Hawkins, James W.....Detroit
 Hayes, Joseph D.....Detroit
 Heath, Leonard P.....Detroit
 Heath, Parker.....Detroit
 Heavner, L. E.....Detroit
 Hedges, Frank W.....Detroit
 Hedrick, Donald W.....Detroit
 Heenan, T. H.....Detroit
 Heideman, Louis.....Detroit
 Heldt, Thomas J.....Detroit
 Hendelman, Manuel H.....Detroit
 *Henderson, A. B.....Fort Bragg, N. C.
 Henderson, Harold.....Detroit
 Henderson, J. L.....Detroit
 Henderson, Leslie T.....Detroit
 Henderson, Wm. E.....Detroit
 Henig, Fred.....Detroit
 Henrich, L. E.....Detroit
 Herkimer, Dan R.....Lincoln Park
 Herrold, Rose F.....Detroit
 Herscheltmann, Roy F.....Detroit
 Hershey, Lynn.....Detroit
 Hewitt, Leland V.....Detroit
 Hewitt, Robert S.....Dearborn
 Heyner, Stanley A.....Detroit
 Hickey, Joseph.....Detroit
 Higbee, Arthur L.....Detroit
 Hildebrandt, Hugh R.....Detroit
 Hileman, Lee.....Ecorse
 Hillenbrand, A. E.....Detroit
 Hillier, L. G.....Detroit
 Hilton, Wm. E.....Detroit
 *Hinko, Edward N.....New Orleans, La.
 Hipp, William.....Detroit
 Hirschfield, John W.....Detroit
 Hirschman, L. J.....Detroit
 Hochman, Morton M.....Detroit
 Hodge, James B.....Detroit

Hodges, Roy W.....Detroit
 Hodoski, Frank J.....Detroit
 Hoenig, Andrew L.....Detroit
 Hoffman, E. S.....Detroit
 Hoffman, Henry A.....Detroit
 Hoffmann, Martin H.....Eloise
 Holcomb, A. A.....Northville
 Hollander, A. J.....Detroit
 Hollis, Henry B.....Detroit
 Holman, Herbert H.....Detroit
 Holmes, Alfred W.....Detroit
 Holstein, A. P.....Detroit
 Holt, Henry T.....Grosse Pointe
 Honhart, Fred L.....Detroit
 Honor, William H.....Wyandotte
 Hoobler, B. Raymond.....Detroit
 Hookey, J. A.....Detroit
 Hooker, Donald H.....Detroit
 Hooper, Norman L.....Detroit
 *Hoopes, Benjamin F.....Dearborn
 Hoops, George B.....Detroit
 Hopkins, J. E.....Detroit
 Horan, Thomas.....Detroit
 Horny, Hugo.....Detroit
 Horton, Reece H.....Detroit
 Horvath, Louis O.....Detroit
 Horwitz, John B.....Detroit
 Host, Lawrence N.....Detroit
 Howard, Austin Z.....Detroit
 Howard, Philip J.....Detroit
 Howell, Bert F.....Detroit
 Howell, Robert.....Eloise
 Howes, Willard Boyden.....Detroit
 Hromadko, Louis.....Detroit
 Hubbard, John P.....Detroit
 Hudson, A. Willis.....Detroit
 Hudson, J. Stewart.....Grosse Pointe
 Hudson, William A.....Detroit
 Huegli, Wilfred A.....Detroit
 Huff, Reginald G.....Wayne
 Hughes, Albertie A.....Detroit
 Hughes, Ray W.....Detroit
 Hull, L. W.....Detroit
 Hunt, T. H.....Detroit
 Hunt, Verne G.....Detroit
 Hunter, Basil H.....Detroit
 Hunter, C. M.....Detroit
 Hunter, Elmer N.....Detroit
 Husband, Charles W.....Detroit
 Hyatt, Jarvis M.....Dearborn
 Hyde, F. W.....Detroit

Iacobell, Peter H.....Detroit
 Ignatius, A. A.....Detroit
 Ihle, Lyman E.....Detroit
 Insley, Stanley W.....Detroit
 Irwin, W. A.....Detroit
 Isaacson, Arthur.....Detroit
 Isbey, E. K.....Detroit
 Israel, Barney B.....Detroit
 Israel, I. G.....Detroit
 Ivkovich, Peter.....Detroit
 Jacoby, Myron D.....Detroit
 Jacobson, Samuel D.....Eloise
 Jaeger, Grove A.....Detroit
 Jaeger, Julius P.....Detroit
 Jaekel, C. N.....Detroit
 Jaffar, Donald J.....Detroit
 Jaffe, Jacob.....Detroit
 Jaffe, J. L.....Detroit
 Jaffe, Louis.....Detroit
 Jahsman, William E.....Detroit
 James, L. Mae.....Detroit
 Jamieson, Robert C.....Detroit
 Jarre, Hans A.....Detroit
 Jarzembowski, F. B.....Detroit
 Jarzynka, Frank J.....Dearborn
 Jasion, Lawrence J.....Detroit
 Jend, William J.....Detroit
 Jenkins, E. A.....Detroit
 Jenne, Byron H.....Detroit
 Jennings, Alpheus F.....Detroit
 *Jennings, R. M.....Great Lakes, Ill.
 Jentgen, Charles J.....Detroit
 Jentgen, L. G.....Detroit
 Jewell, F. C.....Detroit
 Jocz, M. W.....Detroit
 Jodar, E. O.....Detroit
 John, Hubert R.....Detroit
 Johnson, Homer L.....Detroit
 Johnson, Ralph A.....Detroit
 Johnson, R. M.....Detroit
 Johnson, Vernon P.....Detroit
 Johnson, W. H. M.....Detroit
 Johnston, Everett V.....Detroit
 Johnston, J. A.....Detroit
 Johnston, John L.....Detroit
 Johnston, William E.....Detroit
 Johnstone, B. I.....Detroit
 Joinville, E. V.....Detroit
 Jones, Adrian R.....Detroit
 Jones, Arthur J.....Detroit

ROSTER

*Jones, H. C.....Portsmouth, Va.
Jones, L. Faunt.....Detroit
Jones, Roy D.....Detroit
Jonikaitis, J. J.....Detroit
Joyce, Stanley J.....Detroit
Judd, C. Hollister.....Detroit
*Juliar, Benjamin.....Fort Custer

Kahn, William W.....Detroit
Kalet, Herbert I.....Detroit
Kaiman, David.....Detroit
Kaiman, Leo.....Detroit
Kallman, R. Robert.....Detroit
Kaminski, Ladislaus R.....Detroit
Kaminski, Zeno L.....Detroit
Kamperman, George A.....Detroit
Kapetansky, A. J.....Detroit
Kapetansky, Nathan J.....Detroit
Kaplika, Walter A.....Detroit
Karr, Herbert S.....Detroit
Kasaback, V. Y.....Detroit
Kasper, Joseph A.....Detroit
Kass, J. B.....Detroit
Kates, Simon C.....Detroit
Katzman, I. S.....Detroit
Kauffman, Wm.....Detroit
Kaump, Donald H.....Detroit
Kay, Edward W.....Detroit
Kay, Harry H.....Detroit
Kazdan, Louis L.....Detroit
Kazdan, Morris A.....Dearborn
Keane, William E.....Detroit
Kearns, Hubert J.....Detroit
Keating, Thomas F.....Detroit
Keene, Clifford H.....Wyandotte
Keho, Henry J.....East Detroit
Kehoe, Henry J.....East Detroit
Keim, Harther L.....Detroit
Kelly, Edward W.....Detroit
Kelly, Frank A.....Detroit
Kemler, Walter J.....Ecorse
Kennary, James M.....Detroit
Kennedy, Charles S.....Detroit
Kennedy, Lester F.....Detroit
Kennedy, Robert B.....Detroit
Kennedy, Wm. Y.....Detroit
Kenning, John C.....Detroit
Kenyon, Fanny H.....Detroit
Kern, W. H.....Garden City
Kernick, M. O.....Detroit
Kernkamp, Ralph.....Eloise
Kersten, Armand G.....Detroit
Kersten, Werner.....Detroit
Keshishian, Sarkis K.....Detroit
Keyes, E. C.....Dearborn
Keyes, John W.....Detroit
Kibzey, Ambrose T.....Detroit
Kidner, Frederick C.....Detroit
Kimball, David C.....Detroit
*Kimberlin, K. K.....Camp Jackson, S. C.

King, Edward D.....Detroit
King, Melbourne J.....Detroit
Kingswood, Roy C.....Detroit
Kirchner, Augustus.....Detroit
Kirker, J. G.....Detroit
Kirschbaum, Harry M.....Detroit
Klebba, Paul.....Detroit
Klein, William.....Detroit
Kleinman, S.....Detroit
Kliger, David.....Detroit
Kline, Starr L.....Detroit
Kloppel, C. S.....Detroit
Klosowski, Joseph.....Detroit
Klote, M. D.....Detroit
Knaggs, Charles W.....Grosse Pointe
Knaggs, Earl J.....Wyandotte
Knapp, Byron S.....River Rouge
Knapp, Floyd.....Detroit
Knobloch, Edmund J.....Detroit
Knoch, Hubert S.....Detroit
Knox, Ross M.....Ecorse
Koch, John C.....Detroit
Koebel, R. H.....Detroit
Koerber, Edw. J.....Detroit
Koessler, George L.....Detroit
Kohn, A. Max.....Detroit
Kohn, M. E.....Detroit
Kokowicz, Raymond J.....Detroit
Kolasa, W. B.....Detroit
Kopel, Joseph O.....Detroit
*Korby, George J.....Honolulu, T. H.
Koss, Frank R.....Dearborn
Kossayda, Adam W.....Detroit
*Kovach, Emery.....Fort Jackson, S. C.
Kovan, Abraham.....Detroit
Kovan, Dennis D.....Detroit
Kowalski, Valentine L.....Detroit
*Kozlinski, Anthony E.....Detroit
*Krass, Edward W.....Adams Field, Ark.
Kraus, John J.....Detroit
Kreinbring, Geo. E.....Detroit
Kretschmar, Clarence A.....Detroit

Krieg, Earl G.....Detroit
Krieger, Harley L.....Detroit
Kritchman, M. J.....Detroit
Kroha, Lawrence.....Detroit
Krohn, Albert H.....Detroit
Kubaneck, Joseph L.....Eloise
Kucmierz, Francis S.....Detroit
Kuhn, Albert A.....Detroit
Kuhn, Richard F.....Detroit
Kulaski, Chester H.....Detroit
*Kullman, Harold J.....Detroit
Kunz, Franklin.....Detroit
Kurcz, J. A.....Detroit
Kurtz, I. J.....Detroit
Kwasiborski, S. A.....Wyandotte

Laberge, James M.....Wyandotte
LaCore, Ivan.....Detroit
La Ferte, Alfred D.....Detroit
Laird, Robert.....Detroit
Lakoff, Charles.....Detroit
Lam, Conrad R.....Detroit
*Lammy, James V.....Camp Beauregard, La.

La Marche, N. O.....Detroit
Lampman, H. H.....Detroit
Landers, M. B.....Detroit
Landers, M. B., Jr.....Dearborn
Lang, Leonard W.....Detroit
Lange, Anthony H.....Detroit
Lange, William A.....Detroit
Lanin, George M.....Detroit
*Lansky, Mandell.....Fort McClellan, Ala.
Lapham, Fred E.....Detroit
Larson, John A.....Detroit
Larson, Bror H.....Detroit
Lash, Michael, Wm.....Detroit
Lasley, James Wm.....Detroit
Lassaline, S. J.....Detroit
Latham, Ruth M.....Upper Montclair, N. J.

Lathrop, Philip L.....Detroit
*Laub, Stanley V.....Annapolis, Md.
Lauppe, Edw. H.....Detroit
Lauppe, F. A.....Detroit
Law, John H.....Detroit
Lazar, Morton R.....Detroit
Leach, David.....Detroit
Leacock, Robert C.....Detroit
Leader, L. R.....Detroit
Leaver, L. Ross.....Detroit
Leckie, George C.....Detroit
Ledwidge, Patrick L.....Detroit
Lee, Harry E.....Detroit
LeGalle, Geo. M.....Detroit
Lehman, Wm. L.....Detroit
Leibinger, Henry R.....Detroit
Leipsitz, Louis S.....Detroit
Leiser, Rudolf.....Eloise
Leithausen, D. J.....Detroit
*Leland, Sol.....Fort Jackson, S. C.

Lemley, Clark.....Detroit
Lemmon, Charles E.....Detroit
Lemmon, Clarence W.....River Rouge
Lentine, James J.....Detroit
Lenz, Willard R.....Detroit
Lepard, C. W.....Detroit
Lepley, Fred O.....Detroit
Lerman, S. E.....Detroit
Lescoghier, Alex. W.....Grosse Pointe
L'Esperance, Simon P.....Detroit
Leszynski, J. S.....Detroit
Leucutia, Traian.....Detroit
Levin, David M.....Detroit
Levin, Michael M.....Detroit
Levin, Samuel J.....Detroit
Levine, Sidney S.....Detroit
Levitt, Edward L.....Detroit
Levy, David J.....Detroit
Levy, Marvin B.....Detroit
Lewis, Charles T.....Detroit
Lewis, L. A.....Detroit
Lewis, J. Hugh.....Wyandotte
Lewis, Wilfred John.....Detroit
Libbrecht, Robert V.....Lincoln Park
Lieberman, B. L.....Detroit
Liddicoat, A. G.....Detroit
Lightbody, James J.....Detroit
Lignell, Rudolph.....Detroit
Lilly, Charles J.....Detroit
Lilly, Vernon.....Detroit
Linton, James R.....Eloise
Lipinski, Stanley L.....Detroit
Lipkin, Ezra.....Detroit
Lipschutz, Louis S.....Eloise
Livingston, George D.....Detroit
Livingston, George M.....Detroit
Lockwood, Bruce C.....Detroit
Lockstrom, James E.....Detroit
Long, Earle C.....Detroit
Long, John J.....Detroit
Loranger, C. B.....Detroit
*Loranger, Guy L.....Rantoul, Ill.
Lorber, Joseph.....Detroit

*Lord, Herman M.....Denver, Colo.
Lorentzen, Edwin H.....Detroit
Lovas, W. S.....Detroit
Love, W. Thomas.....Detroit
Lovering, William J.....Detroit
Lowrie, G. B.....Detroit
Lowrie, William L., Jr.....Detroit
Lowry, George L.....Detroit
Luce, Henry A.....Detroit
Lutz, Earl F.....Detroit
Lynn, David H.....Detroit
Lynn, Harvey D.....Detroit

Mabee, Frank P.....Detroit
Mabley, J. Donald.....Grosse Pointe
MacArthur, Robt.....Detroit
MacCraken, Frances L.....Detroit
MacFarlane, Howard W.....Detroit
MacGregor, W. W.....Detroit
Mack, Harold C.....Detroit
MacKenzie, Earle D.....Detroit
MacKenzie, Frank M.....Detroit
MacKenzie, John W.....Grosse Pointe
Mackenzie, W. G.....Detroit
MacMillan, Francis B.....Detroit
MacMullen, Frank B.....Detroit
MacQueen, Malcolm D.....Detroit
Maczewski, John E.....Detroit
Madsen, Martha.....Eloise
Maguire, Clarence E.....Detroit
Mahlatjie, Nathaniel M.....Detroit
Mahoney, Hugh M.....Detroit
*Maibauer, F. P.....Oklahoma City Okla.

Maier, Roman H.....Detroit
Mair, Harold U.....Detroit
Maire, E. D.....Grosse Pointe
Malachowski, B. T.....Detroit
Malik, Edward A.....Detroit
Malik, Nur M.....Detroit
Malone, Herbert.....Detroit
Maloney, John A.....Detroit
Mancuso, Vincent S.....Detroit
Mandiberg, Jack N.....Detroit
Manting, Jacob.....Detroit
Maples, Douglas E.....Detroit
Marcus, Daniel B.....Detroit
Marinus, Carleton J.....Detroit
Marion, Donald F.....Detroit
Mark, Jerome.....Detroit
Markoe, Rupert C. L.....Detroit
*Marks, Ben.....Detroit
Marsden, Thomas B.....Detroit
Marsh, Alton R.....Detroit
Marshall, James R.....Detroit
Martin, Edward G.....Detroit
Martin, Elbert A.....Detroit
Martin, I. Herbert.....Detroit
Martin, L. R.....Detroit
Martin, R. M.....Detroit
Martin, W. C.....Detroit
Martinez, P. O.....Detroit
Martner, Edgar.....Grosse Pointe

Marwil, T. B.....Detroit
Mason, Percy W.....Detroit
Mateer, John G.....Detroit
Mathes, Charles J.....Detroit
Matthews, Wallace R.....Dearborn
Maun, Mark E.....Detroit
May, Earl W.....Detroit
May, Frederick T., Jr.....Detroit
Mayer, E. V.....Detroit
Mayer, Willard D.....Detroit
Mayer, William L.....Detroit
Mayne, C. H.....Detroit
McAfee, F. W.....Detroit
McAlpine, Archibald.....Detroit
McAlpine, Gordon S.....Detroit
McClellan, G. L.....Detroit
McClellan, Robert J.....Detroit
McClelland, C. C.....Detroit
McClendon, James J.....Detroit
McClintock, J. J.....Detroit
McClure, Roy D.....Detroit
McClure, Robert W.....Detroit
McClure, William R.....Detroit
*McColl, Charles W.....Alexandria, La.
McColl, Clarke M.....Detroit
McColl, Kenneth M.....Detroit
McCollum, E. B.....Detroit
McCord, Carey P.....Detroit
McCormick, Colin C.....Dearborn
McCormick, Crawford W.....Detroit
McCormick, Frank T.....Detroit
McCullough, Lester E.....Detroit
McDonald, Allan W.....Detroit
McDonald, Angus L.....Detroit
McDonald, Donald.....Detroit
McDonald, George O.....Detroit
McDonald, Grant.....Detroit
McDonald, Peter W.....Wyandotte
McDougall, Bernard Wm.....Detroit
McFadyen, Hugh A.....Detroit
McGarvah, A. W.....Detroit
McGarvah, Joseph A.....Detroit

[illegible]

Newbarr, Arthur A.....	Detroit
Newcomer, Sheldon R.....	Detroit
Newman, Max Karl.....	Detroit
Nickerson, Dean.....	Detroit
Nielson, Aage.....	Detroit
Nigro, Norman D.....	Detroit
Nil, John B.....	Detroit
Nil, William F.....	Detroit
Nolting, Wilfred S.....	Detroit
Norconk, A. A.....	Detroit
Norris, Edgar H.....	Detroit
Northcross, Daisy L.....	Detroit
Northrop, Arthur K.....	Detroit
Norton, Chas. S.....	Detroit
Novy, R. L.....	Detroit
Nowicki, Joseph A.....	Detroit
O'Brien, E. J.....	Detroit
O'Brien, G. M.....	Detroit
O'Donnell, Dayton H.....	Detroit
Ohmart, Galen B.....	Detroit
O'Hara, James T.....	Detroit
Olechowski, L.....	Detroit
Olenikoff, Alex.....	Detroit
Olmsted, Wm. R.....	Detroit
Olney, H. E.....	Detroit
Oman, Cyrus F.....	Detroit
Oppenheim, J. M.....	Detroit
Oppenheim, Milton M.....	Detroit
Opperman, Rudolph.....	Detroit
Orecklin, L.....	Detroit
Organ, Fred W.....	Detroit
Ormond, John K.....	Detroit
O'Rourke, Randall M.....	Detroit
Osius, Eugene A.....	Detroit
Osowski, Felix A.....	Detroit
Ott, Harold A.....	Detroit
Ottaway, John P.....	Detroit
Ottrock, Anton.....	Detroit
*Owen, Clarence I.....	Detroit
Owen, Samuel H. C.....	Detroit
Palmer, Hayden.....	Detroit
Palmer, R. Johnston.....	Detroit
Pangburn, L. E.....	Detroit
Panzner, Edward J.....	Detroit
Parker, Benjamin R.....	Detroit
Parker, Walter R.....	Detroit
Parr, R. W.....	Detroit
Parsons, John P.....	Grosse Pointe Park
Pasternacki, Norbert T.....	Detroit
Patterson, Walter G.....	Detroit
Pawlowski, Jerome.....	Detroit
Paysner, Harry A.....	Detroit
Peabody, Charles William.....	Detroit
Peacock, Lee.....	Detroit
Pearse, Harry A.....	Detroit
Peggs, George F.....	Detroit
Peirce, Howard W.....	Detroit
Penberthy, G. C.....	Detroit
Pensler, Meyer.....	Detroit
Peugnot, Charles F.....	Detroit
Perdue, Grace M.....	Detroit
Perkin, Frank S.....	Detroit
Perkins, Ralph A.....	Grosse Pointe
Perris, H. L.....	Detroit
*Perry, Alvin LaForge.....	El Paso, Texas
Peterman, Earl A.....	Detroit
Petix, Samuel C.....	Detroit
Pfeiffer, Rudolph L.....	Detroit
Phillips, Fred W.....	Detroit
Pickard, Orlando W.....	Detroit
Pierce, Frank L.....	Detroit
Pinckard, Karl G.....	Dearborn
Pink, Rose M.....	Detroit
Pinney, Lyman J.....	Detroit
Pino, Ralph H.....	Detroit
Piper, Clark C.....	Detroit
Piper, Ralph R.....	Detroit
Plaggemeyer, H. W.....	Detroit
Pliskow, Harold.....	Detroit
Podezwa, J. W.....	Hamtramck
Pollock, John J.....	Detroit
Poole, Marsh W.....	Detroit
Poos, Edgar E.....	Detroit
Porretta, Anthony C.....	Detroit
Porretta, F. S.....	Detroit
Posner, Irving.....	Detroit
Potts, E. A.....	Detroit
Pratt, Jean P.....	Detroit
*Pratt, Lawrence.....	Fort Lewis, Wash.
Priborsky, Benjamin H.....	Detroit
Price, A. H.....	Detroit
Price, Alvin Edwin.....	Detroit
Proctor, Bruce.....	Detroit
Proud, Robert H.....	Flat Rock
Ptolemy, H. H.....	Detroit
Pugliesi, Benedetto.....	Detroit
Purcell, Frank H.....	Detroit
*Putra, A. M.....	Camp Forrest, Tenn.
Pyle, Wynand.....	Mountclair, N. J.
Quigley, William.....	Detroit

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St. Louis, R. J. Detroit
Salchow, Paul T. Detroit
Salowich, John N. Detroit
Saltzstein, Harry C. Detroit
Sander, I. W. Detroit
Sanders, Alex W. Detroit
Sanderson, Alvord R.
Grosse Pointe Park
Sanderson, James H. Detroit
Sanderson, Joseph L. Detroit
Sanderson, Suzanne Detroit
*Sandler, Nathaniel Springfield, Mo.
Sandweiss, David J. Detroit
Sands, G. E. Detroit
Sargent, William R. Detroit
Sauter, Simon H. Detroit
Savignac, Eugene M. Detroit
Sawyer, Harold F. Detroit
Schaefer, Robert L. Detroit
Schaeffer, Martin Detroit
*Scarney, Herman D. Detroit
Schembeck, L. S. Detroit
Schenden, A. J. Melvindale
Schiller, A. E. Detroit
Schinagel, Geza Detroit
Schlachet, George F. Romulus
Schlafer, Nathan H. Detroit
Schlemer, John H. Detroit
Schmidt, Harry E. Detroit
Schmidt, J. Robert Detroit
Schmidt, Milton R. Trenton
Schmitt, Norman L. Detroit
Schneck, Robert J. Detroit
Schneider, Curt P. Detroit
Schoenfeld, Gilbert D. Detroit
Schooten, Sarah S. Detroit
Schreiber, Frederick Detroit
Schroeder, Carlisle F. Detroit
Schulte, Carl H. Detroit
Schultz, Ernest C. Detroit
Schultz, Robert F. Detroit
Schwartz, H. Allen Detroit
Schwartz, Louis A. Detroit
Schwartzberg, Jos. A. Detroit
Schweigert, C. F. Detroit
Sciarrino, Stanley V. Detroit
Scott, James W. Detroit
Scott, R. J. Detroit
Scott, Wm. J. Grosse Pointe Farms
Scruton, Foster D. Detroit
Seabury, Frank P. Detroit
Secord, Eugene W. Detroit
Seeley, James B. Dearborn
Seeley, Ward F. Detroit
Segar, Lawrence F. Detroit
Seibert, Alvin H. Detroit
Selby, C. D. Detroit
Seliady, Joseph E. Northville
Sellers, Charles W. Detroit
Sellers, Graham Detroit
Selling, Lowell Detroit
Selman, J. H. Detroit
Sewell, George S. Detroit
Seymour, William J. Detroit
Shafarman, Eugene Detroit
Shaffer, Joseph H. Detroit
Shaffer, Loren W. Detroit
Shaffer, Royce R. Detroit
Sharrer, Charles H. Detroit
Shaw, Robert G. Detroit
Shawan, H. K. Detroit
Shebesta, Bessey H. Detroit
Shebesta, Emil Detroit
Sheldon, John A. Detroit
Shelton, C. F. Detroit
Sheppard, Emma L. W. Detroit
Sheridan, Charles R. Detroit
Sherman, B. B. Detroit
Sherman, William L. Detroit
Sherrin, Edgar R. Detroit
Sherwood, DeWitt L. Detroit
Shewchuk, Alexander P. Detroit
Shields, William L. Detroit
*Shifrin, Peter G. Mare Island, Cal.
Shipton, W. Harvey Detroit
Shlain, Benjamin Detroit
Shore, O. J. Detroit
Shotwell, Carlos W. Detroit
Shulak, Irving B. Detroit
Shurly, Burt R. Detroit
Sickels, Edward W. Detroit
Siddall, Roger S. Detroit
Siefert, John L. Detroit
Siefert, William A. Detroit
Siegel, Henry Dearborn
Sill, Henry W. Detroit
Silverman, I. Z. Detroit
Silverman, M. M. Detroit
Simons, Edward J. Detroit
Simon, Emil R. Dearborn
Simpson, C. E. Detroit
Simpson, H. Lee Detroit
Sippola, George W. Detroit
Sisson, John M. Detroit

Siwka, Isidore J. Detroit
Skinner, E. F. Detroit
Skinner, W. Clare Detroit
Skolnick, Max H. Detroit
Skrzycki, Stephen S. Detroit
Skully, E. J. Detroit
Skully, G. A. Detroit
Sladen, Frank J. Detroit
Slate, Raymond N. Detroit
Slaughaupt, J. G. Detroit
Slaughter, Fred M. Detroit
Slaughter, Wayne C. Detroit
Slazinski, Leo W. Detroit
*Slevin, John G. Fort Custer
Slipson, Edith G. Detroit
Sliwin, Edward P. Detroit
Small, Henry Detroit
Smeeck, Arthur R. Detroit
Smeltzer, Merrill Detroit
Smith, Clarence V. Detroit
Smith, Claude A. River Rouge
Smith, F. Janney Detroit
*Smith, Fred R. Camp Polk, La.
Smith, Gerritt Calvin Detroit
Smith, Henry L. Detroit
Smith, J. Allen Detroit
Smith, James A. Detroit
Smyth, Charley J. Eloise
Snedeker, Bernard C. Highland Park
Snow, L. W. Northville
Socall, Charles J. Detroit
Sokolov, Raymond A. Detroit
Somers, Donald C. Detroit
Sonda, Lewis P. Detroit
*Sorock, Milton L. Charleston, S. C.
Souda, Andrew Detroit
Spademan, Loren C. Detroit
Spalding, Edward D. Detroit
Sparks, J. H. Detroit
Sparling, Harold I. Northville
Sparling, Irene L. Northville
Speck, Carlos C. Detroit
*Spector, M. C. Camp Davis, N. C.
Spencer, Frank Detroit
Spero, Gerald D. Detroit
Sperry, Frederick L. Detroit
Springborn, B. R. Detroit
*Sprunk, Carl J. Kalamazoo
Sprunk, John P. Detroit
Squires, W. H. Eloise
Stafford, Frank W. J. Detroit
Stageman, John Condon Detroit
Stalker, Hugh Grosse Pointe
Stamell, Meyer Detroit
Stamos, Harry F. Detroit
Stanton, James M. Detroit
Stapleton, William J., Jr. Detroit
Starrs, Thomas C. Detroit
Stefani, E. L. Detroit
Stefani, Raymond T. Detroit
Steffes, Everette M. Detroit
Stein, Albert H. Detroit
Stein, James R. Detroit
Stein, Saul C. Detroit
Steinbach, Henry B. Detroit
Steinberger, Eugene Detroit
Steiner, L. J. Detroit
*Steiner, Max Camp Davis, N. C.
Stellhorn, Chester E. Detroit
Stellhorn, Mary Christine Detroit
Sterling, Lawrence Detroit
Sterling, Robert R. Detroit
Stern, Edward A. Detroit
Stern, Harry L. Detroit
Stern, Louis D. Detroit
Stern, Leonard H. Detroit
Stevens, Rollin H. Detroit
Stewart, Thomas O. Detroit
Stirling, Alex M. Detroit
Stocker, Harry Detroit
Stockwell, B. W. Detroit
Stokfisz, T. Detroit
Stout, Lindley H. Detroit
Stricker, Henry D. Detroit
Strickroot, Fred L. Detroit
Strohschein, Don F. Detroit
Stubbs, C. T. Detroit
Sugar, David I. Detroit
*Sugarman, Marcus H. Fort Custer
Sullivan, Hugh A. Detroit
Summers, William S. Detroit
Surbis, John P. Detroit
Sutherland, J. M. Detroit
Swanson, Cleary N. Detroit
Swanson, Carl W. Detroit
Swartz, J. N. Detroit
Swift, Karl L. Detroit
Switzer, B. C. Detroit
Syphax, Charles S., Jr. Detroit
Szappanyos, Bela T. Detroit
Szedia, J. C. Detroit
Szildgyi, Emerick D. Detroit
Szlachetka, Vincent E. Detroit
Szmigiel, A. J. Detroit

Tambllyn, E. J. Detroit
Tann, H. E. Detroit
Tapert, Julius C. Detroit
Tapert, R. T. Detroit
Tassie, Ralph N. Detroit
Tatellis, Gabriel Detroit
Taylor, Ivan B. Detroit
Taylor, Nelson M. Grosse Pointe
Taylor, Reu Spencer Detroit
Tear, Malcolm J. Detroit
Teitelbaum, Myer Detroit
Tenaglia, Thomas A. Ecorse
Texter, Elmer C. Detroit
*Thomas, Alfred E. Fort Bragg, N. C.
Thomas, Delma F. Detroit
Thomas, Fred W. Detroit
Thomas, Joe T. Detroit
Thompson, H. O. Detroit
Thompson, James B. Detroit
Thompson, W. A. Detroit
Thomson, Alexander Detroit
Thosteson, George C. Detroit
Tichenor, E. D. Detroit
Tomsu, Charles L. Detroit
Top, F. H. Detroit
Torrey, H. N. Detroit
Townsend, Frank M. Detroit
Townsend, K. E. Detroit
Trask, Harry D. Detroit
Tregenza, W. Kenneth Detroit
Trevett, Lawrence D. Detroit
Trinity, Granville J. Detroit
Troester, George A. Detroit
Trombley, Bryan Detroit
Trombley, Joseph J., Jr. Detroit
Troxell, Emmett C. Detroit
Trythall, S. W. Detroit
Tufford, Norman G. Detroit
Tulloch, John Detroit
Tupper, Roy D. Detroit
Turcotte, Vincent J. Detroit
Turkel, Henry Detroit
Tuttle, Wm. M. Detroit
Tyson, Wm. E. E. Detroit
Ulbrich, Henry L. Detroit
Ulch, Harold W. Detroit
Ulrich, Willis H. Detroit
Umphrey, Clarence E. Detroit
Usher, William Kay Detroit
Vale, C. Fremont Detroit
VanBaalen, M. R. Detroit
VanBeele, Lawrence H. Ecorse
Van de Velde, Honore Detroit
VanGundy, Clyde R. Detroit
Van Helder, Harry Detroit
Van Nest, A. E. Detroit
Van Rhee, George Detroit
Van Riper, Steven L. Eloise
Vardon, Edward M. Detroit
Vasu, V. O. Detroit
Vergosen, Harry E. Detroit
Vernier, Jean A. Detroit
Vincent, J. LeRoi Wayne
Voegelin, Adolph E. Detroit
Voelkner, George H. Detroit
Vogel, Hyman A. Detroit
Vokes, Milton D. Detroit
Von der Heide, E. C. Detroit
Vossler, A. E. Detroit
Vreeland, C. Emerson Detroit
Waddington, Joseph E. G. Detroit
Wadsworth, George H. Detroit
Waggoner, C. Stanley Detroit
Wainger, M. J. Detroit
Waldbott, George L. Detroit
*Walker, Enos G. Fort Custer
Walker, J. Paul Detroit
Walker, Roger V. Detroit
Wallace, S. Willard Detroit
Walls, Arch Detroit
Walser, Howard C. Detroit
Walsh, Charles R. Detroit
Walsh, Francis P. Detroit
Walters, Albert G. Detroit
Waltz, Frank D. B. Detroit
Wander, William G. Detroit
Ward, W. K. Detroit
Warden, Horace F. W. Detroit
Warner, P. L. Detroit
Warren, Wadsworth Detroit
Wassermann, Lewis C. Detroit
Watson, Douglas J. Detroit
Watson, Ernest Hamilton Detroit
Watson, Harwood G. Dearborn
Watson, J. Edwin Detroit
Watson, Robert W. Highland Park
Watters, F. L. Detroit
Watts, Frederick B. Detroit
Watts, John J. Detroit
Wax, John H. Detroit
Wayne, M. A. Detroit

ROSTER

Waszak, Charles J.....Detroit
Weaver, Clarence E.....Detroit
Weaver, Delmar F.....Detroit
Weed, Milton R.....Detroit
Wehenkel, Albert M.....Detroit
Weiner, M. B.....Detroit
Weingarden, David H.....Detroit
Weinstein, Jacob.....Detroit
Weisberg, A. Allen.....Detroit
Weisberg, Harry.....Detroit
Weisberg, Jacob.....Detroit
Weiser, Frank A.....Detroit
Welch, John H.....Detroit
Weller, Charles N.....Detroit
Wells, Martha.....Detroit
Weltman, Carl.....Detroit
Wendel, Jacob S.....Detroit
Wershow, Max.....Detroit
Westlund, Norman.....Dearborn
Weston, Bernard.....Detroit
Weston, Horace L.....Detroit
Westover, Chas. J.....Plymouth
Weyher, Russell F.....Detroit
Whalen, Neil J.....Detroit
Wharton, Thomas V.....Wyandotte
White, Milo R.....Detroit
White, Milton W.....Detroit
White, Prosper D.....Detroit
White, Theodore M.....Detroit
Whitehead, L. S.....Detroit
*Whiteley, Robt. E.....Philippine Islands
Whitney, Elmer L.....Detroit
Whitney, Rex E.....Detroit

Whittaker, Alfred H.....Detroit
Wiant, R. E.....Detroit
Wickham, A. B.....Detroit
Wiechowski, Henry E.....Detroit
*Wiener, L.....Fort Benning, Ga.
Wight, Fred B.....Detroit
Wilcox, Leslie F.....Detroit
Wilkinson, Arthur P.....Detroit
Williams, C. J.....Detroit
Williams, Mildred C.....Detroit
*Williamson, Edwin M.....
Randolph Field, Tex.
Willis, Henry S.....Northville
Wills, J. N.....Detroit
*Willson, Wesley W.....
Fort Lewis, Wash.
Wilson, C. Stuart.....Detroit
Wilson, Gerald A.....Detroit
Wilson, James Leroy.....Detroit
Wilson, John D.....Detroit
*Wilson, M. C.....Detroit
Wilson, Walter J., Jr.....Detroit
*Winsor, Carlton Webb.....Porto Rico
Wishropp, E. A.....Detroit
Wisner, Harold E.....Detroit
Wissman, H. C.....Detroit
Wittenberg, Samson S.....Detroit
Wittenberg, Sydney S.....Detroit
Witter, Frank C.....Detroit
Witter Joseph.....Highland Park
Witter, Joseph A.....Detroit
Wittus, Morris.....Detroit
Witwer, Eldwin R.....Grosse Pointe Park

Wolfe, Max O.....Detroit
Wollenberg, Robert A. C.....Detroit
Wood, Kenneth.....Detroit
Woodry, Norman L.....Detroit
Woods, H. B.....Detroit
Woods, W. Edward.....Detroit
Woodworth, William P.....Detroit
Wreggit, W. R.....Highland Park
Wruble, Joseph.....Detroit
Wygant, Thelma.....Detroit

Yesayian, H. G.....Detroit
Yonkman, Frederick F.....Detroit
Yott, William J.....Detroit
Young, Donald Andrew.....Detroit
Young, Donald C.....Detroit
Young, James P.....Detroit
Young, Lloyd B.....Detroit
Young, Viola M.....Detroit

*Zbudowski, Myron R.....
Camp Robinson, Ark.
Zbudowski, A. S.....Detroit
Zemens, Joseph L.....
Grosse Pointe Woods
Zielinski, Charles J.....Detroit
Zimmerman, Israel J.....Detroit
Zimmerman, R. L.....Detroit
Zinn, George H.....Detroit
Zinterhofer, John.....Detroit
Zinterhofer, Louis.....Detroit
Zlatkin, Louis.....Detroit
Zolliker, Carl R.....Detroit
Zukowski, Sigmund A.....Detroit

Wexford-Kalkaska-Missaukee Counties

*Albi, R. W.....St. Johns, Newfoundland
Brooks, G. W.....Tustin
Carrow, J. F.....Marion
Daugherty, R. V.....Cadillac
Gruber, John F.....Cadillac
*Hoagland, F. L.....Porto Rico
Holm, Augustus.....Leroy
Holm, Benton.....Cadillac
Hoverter, J. W.....Ewart

Inman, J. C.....Lake City
Laughbaum, T. R.....Lake City
McCall, James H.....Lake City
McManus, Edwin.....Mesick
Masselink, H. J.....McBain
Merritt, C. E.....Manton
Mills, Robert E.....Boon
*Moore, G. P.....Fort Custer
Moore, Sair C.....Cadillac

*Murphy, Michael R.....
Carlisle Barracks, Pa.
Purdy, Calvin S.....Buckley
Seltzer, Sol N.....Marion
Showalter, Laurence E.....Cadillac
Smith, Wallace J.....Cadillac
Tornberg, G. C.....Cadillac
Wood, George H.....Reed City

CONTACT DERMATITIS

(Continued from Page 397)

sponses. In some cases, plant roots were responsible for dermatitis. Gardening may also lead to contact with commercial fertilizers, insect sprays containing arsenic and pyrethrum. In repair work at home, cement is probably the most important contactant involving hands, arms, face and often the lateral aspect of the legs. Soft and hard rubber, bakelite and other plastics, on the steering wheel and the gear shift of a car, produce characteristic designs of dermatitis on corresponding areas of the hands.

Hobbies and Sports

Among the hobbies, photography is outstanding for the frequency of contact dermatitis from various chemicals. Handling of books and papers may lead to dermatitis from glue, leather, and fabrics, and from dyes. Inks, especially the roto-gravure ink of the Sunday paper, is important. Writing induces contact with hard rubber and other materials of a fountain pen, nickel and rubber in the typewriter, ribbon, carbon paper, ink eradicators. Woodcraft may give rise to contact

dermatitis from various types of wood, glues, oils, nickel, and chromium in tools.

In art work, dermatitis from the hair of a paintbrush, from oils, and paints were described.

The mouthpieces of various musical instruments such as flutes, oboes, trumpets, the rosins and chin rest and the wood of a violin appeared as sources of dermatitis. Animal fanciers may develop contact lesions not only from the respective animal, but also from their feed and from insect sprays and all kinds of medicaments.

In the field of sports, leather, leather dyes, rubber, and plastics play an important role. The following agents were mentioned as causes of typical lesions on the hands: Balls of all kinds, boxing gloves, handles of bicycles, bridles, bowling balls, the taping of golf clubs, tennis rackets, and billiard cues.

Summary

Based on the analysis of 109 replies to questionnaires received, three diagrams are presented showing clinically important sites of contact dermatitis. The factors accounting for typical localizations are discussed.

I wish to express my appreciation for the courtesy of those who cooperated in this study.



EDITORIAL



THE GENERAL PRACTITIONER AND TUBERCULOSIS

■ "THE responsibility for finding new cases of tuberculosis rests squarely on the shoulders of the general practitioner, and he is not shirking his responsibility or lying down on the job."

In these words, George A. Sherman, M.D., Director of the Bureau of Tuberculosis Control of the Michigan Department of Health, announces his conviction that the control of tuberculosis is more than a health department job. In an article, "The General Practitioner Finds Tuberculosis," he adds his voice to the many whose close study of this disease problem brings them invariably to the same conclusion; namely, that the last of the struggle against this malady will be carried out in the offices of the general practitioners of medicine. Dr. Sherman is to be congratulated on adding his influence to that program.

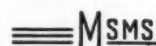
In dealing with a disease problem in which we are wholly on the defensive, as is true in tuberculosis, the first principle for finding that disease is to think that disease. We must think tuberculosis! It is hardly necessary to emphasize that the disease, while once primarily a condition to be found in young adults, today is a threat at all ages. It is now a recognized fact that grandfather and grandmother may be a special danger to the second generation.

Not without significance to the general practitioner is the current discussion among the leading scientists in the tuberculosis field regarding the relative values of various diagnostic procedures in the discovery of the disease. Several years ago, J. Arthur Myers, and early this year, Donald B. Armstrong, and many others have announced their caution of "all-out" x-ray reliance. The best of these men agree that the tuberculin test has not been superceded, and that its value as an aid in diagnosis is not to be overlooked. History, physical examination, and sputum analysis with the added precaution of stomach-washing loom vital, as ever, to the discovery of early disease.

Dr. Sherman says, "Routine mass surveys * * * are considered sound practice today." Although his conception as to what constitutes

'sound practice' may not be that of the general profession, surveys of recent literature and of informal discussion in the tuberculosis groups do not seem to bear him out in his own field. 'Sound practice' will hold the x-ray in high regard as one of four steps in the diagnosis of tuberculosis, none of which can reach its full value for the patient unrelated to the others, or without the personal physician. His judgment brings the unrelated findings into focus. Today, the profession might very well beware the mass survey, with whatever instrument just as a profession of a generation ago shied at the mass survey with the stethoscope. Their conservatism then has been shown again and again to have been amply justified. Previously, the stethoscope in the most able hands was not all knowing. Today, the x-ray film is not sufficiently accurate to be trusted—alone—even in the most skilled hands.

If there has been inertia on the part of physicians to engage and coöperate in health programs it has generally been due to a failure in the public health circles to hold the private physician at his proper value. It is axiomatic that no lasting progress can be made in public health, opinion to the contrary notwithstanding, without the general profession. Impatience with the profession generally results in defeat of the public's best interests. Patient and continuous strengthening of the profession is the best public health practice.



THE MEDICAL PROFESSION AND THE WOMEN'S FIELD ARMY IN THE YEAR 1942

■ IN this year of war it is interesting to review and to revalue the relationship between the medical profession and the Women's Field Army of the American Society for the Control of Cancer, Inc.

In the first place, it is well to clarify for the benefit of those not active in cancer control work the status of the Women's Field Army. This organization was started in 1936 by the American Society for the Control of Cancer, Inc., for

the purpose of developing individual participation in cancer education. Certain members of the medical profession have misunderstood the purpose of the Women's Field Army and have generally thought that the function of this group of women was primarily to raise funds. It is true that a \$1.00 membership or enlistment fee is charged to cover expenses of printed material, travel and organization work. However, the fund-raising activities in no way compare with the educational activities that are carried out by this group of women which now numbers over 200,000 members.

It must be remembered that each of these women every day of the year in many unrecognized ways is developing an intelligent point of view and is spreading knowledge about cancer. She is telling her friends that cancer can be cured if diagnosed and treated early. This knowledge multiplies as it is handed along from one individual to another. She is encouraging women to seek medical advice at the first symptom or sign that might mean cancer.

Some members of the medical profession have thought of the Women's Field Army as an organization controlled and dominated entirely by club women. This is far from being the actual case. The Women's Field Army is a division of the American Society for the Control of Cancer, Inc., which is controlled by an Executive Board of men made up principally of physicians and including 10 per cent or less of lay individuals. The members of the National Executive Board are selected from among the fifty-four members of the National Board of Directors, geographically distributed throughout the United States, and also more than 90 per cent medical.

The Women's Field Army activities are guided by officers of the American Society for the Control of Cancer, Inc., and by the Executive Council of the Women's Field Army. In each state the activities of the Field Army are controlled by a State Executive Committee, which is ordinarily largely composed of members of the State Cancer Committee of the organized medical profession. The local activities of the Women's Field Army, in turn, are controlled in each city or county by a local Executive Committee composed of the local county Cancer Committees of the organized medical profession, plus such additional lay persons as they desire.

The organization and activities of the Women's Field Army are in fact so closely related to the medical profession that the organization might be said to be the eyes and ears of the local communities so far as cancer activities are concerned. The Women's Field Army can be described as the listening post that reports back to the organized County Cancer Committees regarding the status of the lay public and cancer education.

The personnel of the Field Army is ready to serve the organized medical profession in many ways. Professional ethics do not permit the medical profession to dramatize, either in an organized or individual way, the significance of disease. Lay organizations, molded into a unit of a Field Army take over the function of arousing individual response to cancer education. They create a desire on the part of individuals in a community to know something about cancer, and they indirectly bring the patient or the individual into the doctor's office or into an organized clinic approved by the American College of Surgeons as a result of their educational efforts.

As a result of the activities of the Field Army influential citizens who are interested in cancer education leave large bequests and memorial funds to the local community to support established clinics or to be used in other ways, according to a vote by the local Executive Committee approved by the National Body.

Money raised in this manner does not go to support the national program of cancer education. Only a small amount, 30 per cent of the \$1.00 enlistment fee, and of contributions not specifically earmarked for local use, is sent to the National Office to support the tremendous responsibility of educating and organizing the entire nation.

In many states the women of the Field Army coöperate with the organized medical profession in soliciting and winning the interest of the Public Health Departments in instituting cancer control programs and state cancer laws. This type of activity has been entirely guided by the organized medical profession and because of this fact wherever you find a division of cancer control in a State Health Department, the program has been thoroughly tested and approved by the State Medical Society in coöperation with the voluntary efforts of lay individuals.

There is no real conflict between the growth of the official state cancer control programs ad-

COMMUNICATION

ministered by state laws and subsidized by taxation and the educational program of the American Society for the Control of Cancer, Inc. On the contrary each is essential to the other. The need for individual participation of the lay public will always exist. The spread of information about the signs and symptoms of cancer will always be the responsibility of an organization such as the Women's Field Army. The officially paid state worker can never replace the voluntary individual motivated by high ideals and devoting his or her time to active cancer education.

History proves that all great public health measures, such as laws regarding sanitation, food handling, traffic rules and regulations, et cetera, either succeed or fail depending upon the degree of individual responsibility created through educational efforts of the individuals themselves. This is and will remain the key to the program and achievements of the Women's Field Army.

SAMUEL BINKLEY, M.D.,
Medical Director,
American Society for the
Control of Cancer, Inc.

Communication

STATE HEADQUARTERS FOR SELECTIVE SERVICE

Lansing, Michigan
March 26, 1942

MEMORANDUM (M-218)

TO: All Local Boards

SUBJECT: Classification of Doctors of Medicine, Dentistry and Veterinary Medicine

REFERENCE: Local Board Release (89), dated January 28, 1942
Memorandum (M-151), dated January 14, 1942.

1. Doctors of medicine, dentistry and veterinary medicine in Michigan may apply for appointment as officers in the armed forces through the recently established Procurement and Assignment Service, 601 Pennsylvania, N. W., Washington, D. C. All physicians who may be subject to military service should be urged to register with the Procurement and Assignment Service.

2. The Procurement and Assignment Service

is in a position to make recommendations in reference to the civilian needs of any community for medical personnel, as well as providing information in reference to the proper allocation of medical manpower to meet the requirements of the armed forces.

3. Prior to the classification or reclassification of doctors of medicine, dentistry and veterinary medicine, Local Boards are requested *in each individual case* to forward the name and address of the registrant, through State Headquarters at Lansing, requesting the recommendation of the Procurement and Assignment Service in reference to the status of the registrant concerned. State Headquarters will transmit Local Board requests directly to the Sixth Corps Area Chairman at Chicago.

4. Upon receipt of the recommendation of the Procurement and Assignment Service, Local Boards may proceed with the classification of the registrant, giving due consideration to the advisory recommendation of the Procurement and Assignment Service. It will be understood that the recommendation of the Procurement and Assignment Service is advisory only and does not supersede the classification authority of the Local Board. If a registrant's application for commission is pending, it is recommended that induction be postponed temporarily until action has been taken on his application.

5. The primary consideration in the classification of registrants who are doctors of medicine, dentistry and veterinary science is their most effective allocation to meet the requirements of the armed forces, civilian needs and industrial medicine. Therefore, as previously indicated in Memorandum (M-151), the dependency claims of such registrants merit special consideration, since physically qualified registrants in these professions may obtain a commission in the armed forces which would give them sufficient income, in most instances, to support a wife and small family.

6. Since the Procurement and Assignment Service has been established by Executive Order and will supply the armed forces with their requirements for professional personnel in these categories, the Selective Service System is expected to cooperate with this service. In many instances where members of these professions have not been deferred as necessary men in their communities, it may be necessary for Local Boards to move them toward induction as a means of causing such registrants to register with the Procurement and Assignment Service and apply for commissioned service in the armed forces. Every reasonable effort will be made by this Headquarters and our Local Boards to cooperate with the Procurement and Assignment Service in securing proper allocation of this professional manpower.

E. M. ROSECRANS,

State Director.

JOUR. M.S.M.S.

Membership Intangibles

THE State Society membership in May, 1935, was 3,391. Today it stands at 4,527. What circumstances caused this extraordinary increase of 1,136 members in a few short years?

First to come to one's mind would be the *tangible* benefits of membership, those corporal values, such as in medical education and economics which have helped to make the Michigan State Medical Society outstanding among the leading medical organizations of the nation, and the personal service rendered by a modern Medical Society in matters associated with every member's practice.

But just as important, if not more so, are the *intangible* benefits of membership. Whence comes the profession's enviable standing and the resulting position of social responsibility and leadership in the community enjoyed by the individual practitioner? Who maintains the present high standards of medicine? These and many other casually accepted benefits—such as the preservation of the physician-patient relationship—are the results of group action.

Members of the Michigan medical profession, scientifically trained to accept only the good, have endorsed the State Society in its professional and educational, economic, and sociologic activities by building its membership to an all-time high.

Henry R. Carstey

President, Michigan State Medical Society



President's



Page





YOU AND YOUR BUSINESS



PROCUREMENT AND ASSIGNMENT SERVICE

Procurement and Assignment Service was ordered decentralized, according to P. R. Urnston, M.D., Bay City, Michigan Chairman of the Procurement and Assignment Committee, at the P. and A. S. Conference in Washington, D. C., April 24-25. The work of procurement and assignment of physicians is now the responsibility of every individual state. A representative of the Surgeon General of the Army has been assigned to Michigan with authority to cut red tape and grant commissions direct. Physical examinations will be made within the state and reports received by the applicant within twenty-four hours. Commissions will be granted within two days.

The Procurement and Assignment Committee has processed the names of all practitioners of medicine in Michigan, and reports on individual physicians will receive immediate clearance.

5,000 Medical Officers Needed Now

The need for 5,000 medical officers immediately and 15,000 before January 1, 1943, was the prime factor leading to the streamline granting of commissions to eligible doctors of medicine. A full-time office located in Detroit will be followed by the opening of additional offices throughout the state, where necessary.

IS THIS COMPULSORY SICKNESS INSURANCE?

The Social Security Board, in its Sixth Annual Report, discusses the advisability of further social gains, with particular emphasis on extension of medical care. Does the Board propose a complete compulsory sickness insurance plan, to cover approximately 115,000,000 persons in the United States, in the following terse paragraph found in this report (page 25)?

The Board believes that measures to assure adequate medical care to all persons who need it and to protect workers and their families against the cost of medical care are of basic importance to social and national security and that a beginning should be made in this field. This belief has been confirmed in recent months by the fact that a large proportion of the young men who are in the ages when health should be at its best have been found physically unfit to enter the armed forces.

For the facts on rejections of selectees, the illuminating article of Colonel L. G. Rowntree et al. (Jour. A.M.A., April 4, 1942) is recommended to the Social Security Board for reading.

GUARANTEEING HOSPITAL STAFF POSITIONS

A total of thirty Michigan hospitals have advised the MSMS Medical Preparedness Committee that the hospital staff positions in their institutions, now held by Doctors entering the armed forces of the United States, will be retained upon the physicians' discharge from active military duty.

Since the lists published in the February, March and April JOURNAL, the following replies have been received:

Lansing—Sparrow Hospital—K. P. Hodges, M.D., Secretary of Staff—guaranteed.

Detroit—Woman's Hospital—R. G. Kingswood, M. D., Secretary, Medical Executive Committee—guaranteed.

MALPRACTICE AGAINST ARMY-NAVY MEDICAL OFFICERS

Although malpractice suits by persons in military service against members of the medical corps have thus far been rare, nevertheless a medical officer in the armed forces (and a physician acting for a local Selective Service Board) is subject to claims of malpractice. By virtue of his service or function he stands in no different position with respect to answerability to his patient from that of a physician acting solely in a civil capacity.

Where a malpractice claim is pressed against an Army-Navy medical officer or an examining physician for a local draft board for alleged malpractice, the Government provides defense for the physician accused. The doctor has the right to have the case removed to a federal court and to be defended by United States attorney designated by the Department of Justice. However, if a judgment is rendered against such a medical officer, there is no provision in law by which the judgment could be paid by the government.

"Physicians concerned cannot safely discontinue such forms of malpractice insurance protection as they previously have carried," stated the JAMA of September 13, 1941. It is hoped that especially favorable premium rates may be obtainable from insurance companies for policies to protect physicians in the Army and Navy and local draft board physicians against claims for malpractice arising from governmental service.

1942 REVENUE ACT

How much higher will individual income taxes be? Will forced savings be voted? Will there be a general sales tax (Federal)?

Authoritative sources state that the 1942 Revenue Act is a long way from enactment. The proposal may be split into two parts, in order to permit the new and increased excise taxes to be readily adopted to bring in needed revenue; the second part of the bill affecting personal and corporation income, surtaxes, and excess profit taxes will come later, after prolonged hearings.

The sales tax is obtaining considerable support. However, the enactment of this tax will NOT make unnecessary an increase in personal and corporation taxes. It is felt that in due course all income, surtax, and corporation taxes will be greatly increased and that the sales tax will also be applied.

PROPOSED INCOME TAX DEDUCTION FOR MEDICAL CARE COSTS

The House Committee on Ways and Means, U. S. Congress, is considering a recommendation of the Treasury Department that "a deduction (in federal income taxes) should be allowed for extraordinary medical expenses which are in excess of a specified percentage of a family's net income. The amount allowed under such a deduction should however be limited to some specified maximum amount." By way of example, the Treasury Department suggested that medical expenses totalling less than five per cent of the net income of the taxpayer might be considered as ordinary medical expenses and would not be deductible; a maximum amount of \$2,500 to be allowed as a deduction was proposed.

The income tax laws of two states (Idaho and Minnesota) now authorize deductions for expenses of medical care.

"COMMON SENSE"

There has developed a sense of dishonesty among certain types of patients who never overlook an opportunity for monetary gain at the expense of a reputable physician, with all dire consequences to the latter. To forestall such a possibility it is advisable to do those things that would be recognized in any court of law as substantial, from the standpoint of common sense.

Without doubt, a common source of instigating malpractice litigation is the unwitting habit of making critical remarks about other doctors' work; common decency and fairness should easily curb this habit.—M. J. HUBENY, M.D., in "The Medico-Legal Aspects of Injuries Following the Application of Roentgen Rays."

TEMPORARY HOSPITALIZATION FOR WAR-INJURED CIVILIANS

Plans of the Office of Civilian Defense provide that in event of civilian injuries from air raids or other enemy action, all voluntary and governmental hospitals of the nation may serve as Casualty Receiving Hospitals, and be reimbursed by the federal government.

MAY, 1942



Why Johnnie Walker is Two People

FANCY THAT! There really are two Johnnie Walkers—one Black Label (12 years old), one Red Label (8 years old).

Two fine versions of one truly rich whisky. For Johnnie Walker is Scotch at its smooth, mellow best. One sip and you'll agree.



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Both 86.8
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IN MEMORIAM



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When it is necessary to evacuate from Casualty Receiving Hospitals, certain hospitals in "safe areas" will be designated as Emergency Base Hospitals for the reception of casualty or other patients.

Medical staffs will be supplemented by physicians commissioned in the U.S.P.H.S. Reserve Corps who will be sent to the area.

Management and control of local hospitals in the emergency program will remain the responsibility of the local or state authorities.

IN MEMORIAM

Fred Norton Blanchard of Detroit was born in the year 1878 and was graduated from the Detroit College of Medicine in 1903. His whole professional life had been lived in Detroit. One of his activities had been to help establish an effective school health service in cooperation with the Department of Health. During the first World War he was in France with Base Hospital No. 60. Doctor Blanchard died in Harper Hospital on March 3, 1942.

Joshua L. Yeagley of Waldron was born in the year 1873 and was graduated from the Toledo Medical College in 1901. He had practiced in Waldron for forty-two years. Doctor Yeagley died from injuries sustained from an auto accident on April 12, 1942.

Died in Military Service

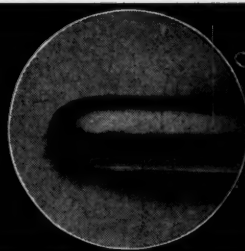
Captain Harry Sage Gorelick of Detroit was born in the year 1906 and was graduated from the University of Michigan Medical School in 1930. He was commissioned a first lieutenant in the Medical Reserve Corps of the U. S. Army March 29, 1934, and promoted to captain, July 5, 1941. Dr. Gorelick was formerly on the staff of the City of Detroit Receiving Hospital. He died on April 10, when a fire destroyed an officers' barracks at Camp Grant, Illinois.

Leo J. Latz, M.D., and Emil Reiner, C.E., both of Chicago, are the authors of an article in the *American Journal of Obstetrics and Gynecology* entitled "Further Studies on the Sterile and Fertile Periods in Women." Their investigation leads them to refute "the validity of the claims of 'Rhythm' babies," and they conclude that the factual evidence their report educes "confirms our belief that the biologic law of sterility and fertility as originally propounded by Knaus is correct, essentially practical and workable."

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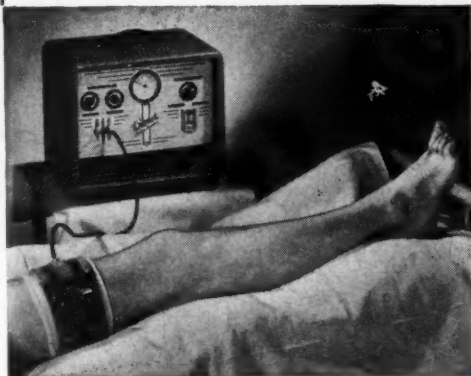
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MICHIGAN'S DEPARTMENT OF HEALTH

HENRY A. MOYER, M.D., Commissioner, Lansing, Michigan

HEART DEATHS HIGHEST

Heart disease was again the leading cause of death in Michigan in 1941, taking 15,709 lives or 30 per cent of all deaths in the state during the year. Cancer was the second leading cause, with 6,282 deaths or 12 per cent of the total.

There were no changes among the ten leading causes of death in 1941, each appearing in the same position it held in 1940. Apoplexy was third on the list with 4,633 deaths attributed to it. The other causes and corresponding deaths were: accidents (all forms) 4,448, nephritis 2,850, pneumonia 2,131, tuberculosis 1,723, diabetes 1,382, premature birth 1,354 and arteriosclerosis 905.

CANCER DEATHS NUMBER 6,300 IN 1941

Cancer caused nearly 6,300 deaths in Michigan last year, approximately 12 per cent of all deaths in the state, according to Michigan Department of Health records. Every eighth death in Michigan in 1941 was due to some form of cancer and one such death occurred in the state every hour and twenty-four minutes.

During April, designated by Congress as Cancer Control Month, the Department sent out a special series of news releases to weekly papers of the state. The releases covered the usual points, the seriousness of cancer as a cause of death and encouraging possibility of cure if prompt medical attention is secured at the appearance of any signs of the disease. The common symptoms were emphasized, as were the dangers of delay and self-treatment and the necessity for good medical care.

IMMUNIZATION PROGRAM

Michigan's emergency immunization campaign to protect children over nine months and under ten years of age against diphtheria and smallpox is well under way. By April 9, a month after the program was begun in Wayne county, the medical societies of twenty-four other counties had completed plans for large scale immunizations.

The State Health Department is sending 200,000 letters to parents in these counties urging them to take their unprotected children to their physicians immediately. Report forms for the program are being sent by the Department to physicians who request them as rapidly as they can be printed.

Some difficulty is being met by the Department laboratories in obtaining glass vials,

rubber stoppers and bulbs in sufficient quantities to meet the demands of physicians giving the immunizations, but every effort is being made to minimize delay in supplying the biologics.

In submitting requests to distributing centers for toxoid and vaccine, physicians are asked to order only enough to meet actual needs. It is better to place several small orders than a single large one, say laboratory authorities. This is particularly true for smallpox vaccine because of its short period of potency.

INTENSIVE NURSING TRAINING

During March, 172 nurses representing 58 Michigan counties attended the institutes or workshops at Clear Lake Camp near Battle Creek for intensive training as instructors in Red Cross home nursing classes.

The workshops were sponsored jointly by the W. K. Kellogg Foundation, the Michigan Department of Health, the American Red Cross and the Michigan State Nurses Association. Nurses attended the workshops as guests of the Kellogg Foundation. Their meals and lodging were furnished free.

This method of providing teacher training for the nurses proved so successful that the Kellogg Foundation offered the facilities of the camp to nurses from the neighboring states of Ohio, Illinois and Indiana.

INDUSTRIAL HEALTH ACTIVITIES

Wartime demands on Michigan's smaller industries have stepped up efforts to protect the health of factory workers. Department of Health industrial hygiene physicians and engineers are spending most of their time answering requests for their services in solving health problems in the factories employing 800 to 1,000 men.

Most of the requests for these services come from plant management, but a large number are received from labor organizations. Studies of working conditions are made in co-operation with plant physicians. Follow-up visits to the plants by the engineers have shown that 85 to 90 per cent of their recommended improvements have been completed.

Harmful dusts, vapors, fumes and gases are the most common health hazards in smaller plants just as they are in larger ones. Crowded factory conditions resulting from the rush of war production make removal of these hazards more important than ever.

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★ COUNTY AND PERSONAL ACTIVITIES ★

100 Per Cent Club for 1942

County Society	Secretary
Branch	James Bailey, M.D.
Cass	John K. Hickman, M.D.
Chippewa-Mackinac	L. J. Hakala, M.D.
Dickinson-Iron	E. B. Andersen, M.D.
Huron	Roy R. Gettel, M.D.
Ingham	R. J. Himmelberger, M.D.
Ionia-Montcalm	John J. McCann, M.D.
Kalamazoo	Hazel R. Prentice, M.D.
Luce	Sidney Franklin, M.D.
Medical Society of North Central Counties	C. G. Clippert, M.D.
Menominee	Wm. S. Jones, M.D.
Muskegon	Thomas J. Kane, M.D.
Oceana	V. W. Jensen, M.D.
Ontonagon	W. F. Strong, M.D.
Sanilac	E. W. Blanchard, M.D.
Shiawassee	R. J. Brown, M.D.
St. Clair	J. H. Burley, M.D.
Tuscola	F. J. Gugin, M.D.
Wexford-Kalkaska	B. A. Holm, M.D.

As of April 1, 1942, the above nineteen county medical societies had reported 1942 dues for one hundred per cent of their membership. Congratulations are in order, especially to the hard-working secretaries whose efficient efforts made this good record possible. Most of the rest of the 36 county societies have but a very few who have not paid 1942 dues which keeps them from the rolls of the "100 Per Cent Club for 1942."

Wanted.—Physician needed at Woodland, Michigan (Barry County). Write H. Classic, Woodland, for details.

S. E. Gould, M.D., Detroit, has been honored with the degree of Doctor of Science (in Pathology) by the University of Michigan.

The Kent County Medical Society Bulletin, April issue, contains a list of current medical publications available locally. The list totals more than 100 journals.

The next examination of the Michigan State Board of Examiners in the Basic Sciences will be held on June 12 and 13, 1942. Inquiries may be addressed to the Board, 101 North Walnut Street, Lansing, Michigan.

The Annual Meeting of the Michigan Allergy Society was held in Detroit April 16. The following officers were elected for the coming year: President, S. W. Insley, M.D.; Vice President, Samuel J. Levin, M.D.; Secretary-Treasurer, Barney A. Credille, M.D., of Flint.

The Annual Hickey Memorial Lecture of the Wayne County Medical Society was presented by Eugene P. Prendergast, M. D., of Philadelphia, April 6. The presentation was concerned with the roentgen manifestations of the healthy chest and the modifying influences by some of the industrial dusts, including silica.

Price Ceilings—Blanket price ceilings on goods, rent, and most service charges (to be set at their high points in March) will soon be made by the government. Everything will be covered except professional fees, raw farm crops and processed crops which do not reflect 110% parity back to farmers, and auction sales.

"Electrocardiography" in a full-time, intensive two weeks' postgraduate course is again being offered by the Michael Reese Hospital, Chicago, under the direction of Louis N. Katz, M.D., Director of Cardiovascular Research. The course is designed for the general practitioner and will include practice with several machines as well as sessions of interpretation.

The Genesee County Medical Society Bulletin has been running a series of articles entitled "Early Practitioners in Genesee County." In addition, H. E. Randall, M.D., Past-President of the Michigan State Medical Society, has been writing some illuminating articles on the various branches of the healing arts. His essay entitled "Nurses as seen by Dickens" was a feature of the April issue.

The Wayne County Medical Society has inaugurated first-aid classes for physicians. Lectures have been presented by Grover C. Penberthy, M.D., A. H. Whittaker, M.D., Frank P. McCormick, M.D., and Ralph H. Pino, M.D. Water safety is being explained by A. S. Moreau of the American Red Cross. The classes are under the Directorship of Joseph P. Molnar, M.D., and Charles M. Burgess, M.D., and have a total enrollment of 55.

Blood and Plasma Banks.—Hospitals in communities exposed to war hazards may receive assistance in the establishment of a blood and plasma bank through funds available to the USPHS. Financial and technical assistance will be provided to 300 hospitals of 200 or more beds approved by the ACS and the AMA. These hospitals will agree to maintain required technical standards and to accumulate a surplus of liquids or frozen plasma amounting to one unit per bed within three months.

State Board Examinations

Due to the War Emergency, the Michigan State Board of Registration in Medicine is advancing the dates of the June examination to Wednesday, Thursday, and Friday, June 3, 4, and 5, 1942.

The examination will be given concurrently at the University of Michigan, Ann Arbor, and Wayne University, Detroit. The fee for the complete examination is \$25.00. Applications and fees must be filed in the office of the Michigan State Board of Registration in Medicine, 202-3-4 Hollister Building, Lansing, thirty days prior to the examination date.

R. H. Lyons, M.D., Ann Arbor, and Harry Balberor, M.D., Eloise, are co-authors of "Feverile Reactions Accompanying the Readministration of Sulfathiazole" which appeared in the March 21, 1942, issue of *The Journal, American Medical Association*.

* * *

Matthew R. Kinde, M.D., Field Director of the Kellogg Foundation and Chairman of the MSMS Tuberculosis Control Committee, is the author of "Health at the Crossroads" which was published in the January, 1942, issue of *Hygiea*.

* * *

New County Medical Society Secretaries have been appointed to replace those who have left for military service or other duties, as follows

Chippewa-Mackinac—Stanley H. Vegors, M.D., Sault Ste. Marie, replaces L. J. Hakala, M.D., now with the U. S. Public Health Service.

Oakland—Ferdinand Gaensbauer, M.D., Pontiac, replaces Donald Smith, M.D., now with the U. S. Navy. Ontonagon—W. F. Strong, M.D., Ontonagon, replaces R. J. Shale, M.D., who has accepted an appointment in Florida.

Tuscola—D. B. Ruskin, M.D., Caro, replaces F. J. Gugino, M.D., now with the U. S. Navy.

* * *

Official Call.—The Ninety-third Annual Session of the American Medical Association will be held in Atlantic City, New Jersey, June 8 to 12, 1942. The AMA House of Delegates will convene on Monday, June 8; the Scientific Assembly will open the evening of June 9.

Michigan Delegates to the AMA House of Delegates are Henry A. Luce, M.D., Detroit; T. K. Gruber, M.D., Eloise; Claude R. Keyport, M.D., Grayling; L. G. Christian, M.D., Lansing; Frank E. Reeder, M.D., Flint; J. P. Pratt, M.D., Detroit, Ob-Gyn Section; and B. R. Shurly, M.D., Detroit, E.N.T. Section.

Hotel reservations should be obtained immediately. Reservation requests should be addressed to Dr. V. Earl Johnson, Chairman Hotel Committee, 16 Central Pier, Atlantic City, New Jersey.

MAY, 1942



Main Entrance

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CHICAGO

The Oakland County Medical Society Bulletin of April prints the following interesting paragraph: "We would like to call attention to a letter that came into our hands recently:

'We could list many complimentary letters from osteopathic physicians who are using our products.' . . . P.S.2 "When 25,000 to 40,000 medical doctors are withdrawn from active practice, your office calls will increase. You will need quality products at economical prices to help care for these patients in the coming emergency.—Vitamin Yeast Company, Paw Paw, Michigan."

* * *

The Michigan Pathological Society met on April 11, at St. Mary's Hospital, Grand Rapids. The subject of the program was "Rare, Interesting and Unusual Granulomas." Fifteen were in attendance. Cases were presented by the following: Mary Ruth Oldt, M.D. (case presented by J. A. Kasper, M.D.); E. W. Lange, M.D.; G. Steiner, M.D.; John King, M.D., and D. C. Beaver, M.D.; C. A. Payne, M.D., and H. Prentice, M.D.

The next meeting will be held in Detroit at Receiving Hospital on May 23. All physicians who are interested in Pathology are invited to attend.

* * *

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Mr. Malcolm Galbraith, vice president and director of sales of the Upjohn Company, Kalamazoo, died April 10, 1942, in Kansas City. Mr. Galbraith was born in Bowmanville, Ontario, Canada, October 23, 1876. He received his bachelor of pharmacy degree at Ontario College of Pharmacy in 1898, entering the drug business in Ontario the same year. He later became a naturalized citizen of the United States. In 1909 he left the H. K. Mulford Company of Philadelphia to join the Upjohn Company. In October, 1929,

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he was elected to the board of directors and named director of sales. He was made vice president of the company in May, 1936.

* * *

A. C. Furstenberg, M.D., Dean of the University of Michigan Medical School, recently reported to the Medical Preparedness Committee of the Michigan State Medical Society that 128 medical students were enrolled in the R.O.T.C., that 45 junior and senior medical students have applied for commissions in the Medical Administrative Corps, U. S. Army.

Dean Furstenberg also reported that ten members of the U of M Medical School teaching staff hold commissions in the Medical Reserve and fourteen have applied for commissions. Four residents on the University Hospital staff hold commissions; and 2 have applied for them. Seven assistant residents have applied for commissions. Commissions are held by six interns while applications have been made by eight interns.

* * *

Past-Presidents' Night was celebrated by the Bay County Medical Society April 8, 1942, with a dinner honoring the twenty-four past-presidents of the organization, at the Wenona Hotel.

C. H. Baker, M.D., a Past-President of the Michigan State Medical Society, who served as President of the Bay County Medical Society in 1887, was the dean of the group, which included Doctors Wm. Kerr, V. L. Tupper, W. R. Bal-

lard, R. C. Perkins, G. W. Moore, J. C. Grosjean, R. E. Scrafford, G. M. McDonell, A. J. Zarembo, E. C. Warren, P. R. Urmston, V. H. Dumond, C. W. Ash, M. R. Slattery, E. S. Huckins, J. H. McEwan, S. L. Ballard, M. C. Miller, A. D. Allen, C. L. Hess, L. Fernald Foster, R. H. Criswell and R. N. Sherman. A gold key was awarded to each Past-President by the Society.

* * *

Michigan Medical Service.—Some interesting facts from the records of Michigan Medical Service as of April 15, 1942:

During the year 1941, services amounting to \$1,233,359.94 were received by 44,956 subscriber-patients from 3,711 doctors.

Physicians in every county in the state have had patients who were subscribers. As an example of the distribution of patients throughout the state, 326 patients were treated by doctors in Chippewa County, 153 patients in Delta County.

Since the inauguration of Michigan Medical Service, payments to doctors for services will be in excess of \$1,500,000.00.

A total of 3,327 doctors of medicine are registered as participating.

The largest sum of payments in the year 1941 received by one physician was \$8,648.90 (for 131 patients).

The largest number of patients in the year 1941 served by one physician was 575.

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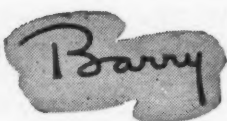
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The 1942 Annual Meeting of the Michigan State Medical Society will be held in Grand Rapids, September 23, 24, 25, 1942. A list of speakers on the Scientific Program, consisting of some fifty outstanding clinicians from all parts of the United States and Canada, will be published in an early issue of The Journal.

The scientific and technical exhibit of 120 spaces will be the largest educational display which the Michigan State Medical Society has sponsored in its 77 years of existence.

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Picker X-Ray Corporation, New York, New York
Professional Management, Battle Creek, Michigan
Randolph Surgical Supply Company, Detroit, Michigan.

The above ten firms were exhibitors at the 1941 Convention of the Michigan State Medical Society and helped make possible for your enjoyment one of the outstanding state medical meetings in the country. Remember your friends when you have need of equipment, medical supplies, appliances or service.

* * *

Recent talks by officers, committeemen and members of the Michigan State Medical Society:

L. Fernald Foster, M.D., Bay City, Secretary of the Michigan State Medical Society, made the following appearances: Barry County and Ionia County at Lake Odessa, February 12, 1942; Clinton County at St. Johns, April 13; Oceana County at Hart on April 21; and Mason County at Ludington on April 21.

A. H. Miller, M.D., Gladstone, Councilor of the 12th District, MSMS, and members of the Public Relations Committee, addressed the Luce County Medical Society on April 7.

W. H. Huron, M.D., Iron Mountain, Councilor of the 13th District, MSMS, and D. R. Smith, M.D., Iron Mountain, member of the MSMS Public Relations Committee, addressed the Houghton-Baraga-Keweenaw County Medical Society on April 7.

Oliver W. Lohr, M.D., Saginaw, presented an illustrated talk on "Cancer Control" at the meeting of the Woman's Study Club of Freeland, Michigan, on April 21.

E. S. Gurdjian, M.D., addressed the medical officers of Fort Custer on March 18 on the "Di-

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agnosis and Treatment of Intra-Cranial Hemorrhage Resulting from Trauma."

Wm. J. Burns, Lansing, Executive Secretary, MSMS, addressed the Flint Lions Club on April 9 on "What the Medical Society Means to Your Community."

H. S. Collisi, M.D., Grand Rapids, Chairman of the MSMS Public Relations Committee, spoke to the Manistee County Medical Society at Manistee on March 23 and to the Ionia-Montcalm County Medical Society at Greenville on April 14.

Fred Reed, M.D., Three Rivers, member of the Public Relations Committee, appeared before the Van Buren County Medical Society on April 9; and before the Berrien County Medical Society in Benton Harbor on April 16.

A. W. Strom, M.D., Hillsdale, member of the Public Relations Committee, appeared before the Ingham County Medical Society in Lansing on March 17 and before the Genesee County Medical Society in Flint on March 24.

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Acknowledgment of all books received will be made in this column and this will be deemed by us as a full compensation of those sending them. A selection will be made for review, as expedient.

YOUR PERSONALITY. Introvert or Extravert? By Virginia Case. New York: The MacMillan Company, 1941. Price: \$2.50.

This volume is based upon the psychological types of Jung of introvert and extravert. It was written for the layman that he may classify himself and his friends. The response of these two types to social relations is also emphasized. One hopeful chapter is on developing ambiversion. It is interestingly written.

A PRIMER ON THE PREVENTION OF DEFORMITY OF CHILDHOOD. By Richard Beverly Raney, B.A., M.D., Associate in Orthopaedic Surgery, Duke University School of Medicine, Durham, N. C.; Attending Orthopaedic Surgeon, Watts Hospital, Durham, N. C. In Collaboration with Alfred Rives Shands, Jr., B.A., M.D., Medical Director, Alfred I. du Pont Institute of The Nemours Foundation, Wilmington, Delaware; Visiting Professor of Orthopaedic Surgery, University of Pennsylvania School of Medicine, Philadelphia, Pa. Illustrated by Jack Wilson. Elyria, Ohio: National Society for Crippled Children, Inc., 1941. Price: \$1.00.

This monograph discusses the common causes and prevention of deformities in children. The problem is approached both by forestalling the causative affection or by forestalling the tissue changes which the affection tends to produce. It is simply and practically written and should, if widely read, aid in the prevention of loss of function to many unfortunate children.

NEUROANATOMY. By Fred A. Mettler, A.B., M.D., Ph.D., Professor of Anatomy, University of Georgia School of Medicine, Augusta, Georgia. With 337 illustrations including 30 in color. St. Louis: The C. V. Mosby Company, 1942. Price: \$7.50.

Mettler has taken a hopelessly confused subject and by means of excellent diagrams and drawings has clarified much of the confusion. The refer-

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FRACTURES AND TRAUMATIC SURGERY—Two Weeks Intensive Course will be offered starting June 29 and September 21. Informal course available every week.

GYNECOLOGY—Two Weeks Intensive Course will be offered starting June 15 and October 19. One Month Personal Course starting August 3. Clinical and Diagnostic Courses every week.

OBSTETRICS—Two Weeks Intensive Course will be offered starting October 5. Three Weeks course starting August 10. Informal Course every week.

OTOLARYNGOLOGY—Two Weeks Intensive Course will be offered starting September 14. Clinical and Special Courses every week.

OPHTHALMOLOGY—Two Weeks Intensive Course will be offered starting September 28. Five Weeks Course in Refraction Methods starting October 19. Informal Course every week.

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ences are unusually well selected and remarkably inclusive. The typography is excellent. Two-color diagrams aid greatly in making the material understandable. Recommended to all interested physicians.

THE BLOOD BANK AND THE TECHNIQUE AND THERAPEUTICS OF TRANSFUSIONS. By Robert A. Kilduffe, A.B., A.M., M.D., F.A.S.C.P., Director, Laboratories, Atlantic City Hospital; City Bacteriologist, Atlantic City; Serologist, Municipal Hospital for Contagious Diseases, Atlantic City; Pathologist, Atlantic County Hospital for Tuberculous Diseases; Serologist, Betty Bacharach Home for Crippled Children; Serologist, Jewish Seaside Home, Atlantic City, etc.; Formerly, Major, Medical Corps, United States Army; and Michael DeBailey, B.S., M.D., M.S., F.A.C.S., Assistant Professor of Surgery School of Medicine, Tulane University of Louisiana; Visiting Surgeon, Charity Hospital, Touro Infirmary, and Mercy Hospital, New Orleans; Associate in Surgery, The Ochsner Clinic, New Orleans. With two hundred fourteen illustrations and one color plate. St. Louis: The C. V. Mosby Company, 1942. Price: \$7.50.

The authors review various phases of blood transfusions and the major variations and modifications in methods and techniques. From this review and their own experience they offer their evaluation. The references are very complete and well classified. It is recommended especially to the surgeon. The typography is excellent.

ENCEPHALITIS. A Clinical Study. By Josephine B. Neal, A.B., M.D., Sc.D., F.A.C.P., Associate Director, Bureau of Laboratories, Department of Health, New York; Clinical Professor of Neurology, College of Physicians and Surgeons, Columbia University. Collaborators: Lauretta Bender, M.A., M.D.; Helen Harrington, M.A., M.D.; Ralph S. Muckenfuss, B.S., M.D.; Tracy J. Putnam, A.B., M.D.; Albert A. Rosner, A.B., M.D.; Lewis D. Stevenson, A.B., M.D. Foreword by Hubert S. Howe, A.M., M.D. New York: Grune & Stratton, 1942. Price: \$6.75.

Because of the fear that the dietary deficiencies and privations of the present war may well furnish the soil for another epidemic of encephalitis this monograph is of especial interest. The author has had under her direction over seven hundred patients afflicted with this disease and in this volume she gives the benefit of her observations and study. It is quite readable and practical and is especially recommended to the pediatrician and health official.

METHODS OF TREATMENT IN POSTENCEPHALITIS PARKINSONISM. By Henry D. von Witzleben, Elgin State Hospital, Elgin, Illinois. Preface by Theodore J. C. von Storch, Associate Professor of Neurology, Albany Medical College; Attending Neurologist, Albany Hospital, Albany, New York. New York: Grune & Stratton, 1942. Price: \$2.75.

This monograph is a comprehensive review of the numerous therapies that have been recommended with a brief evaluation of each. In the case of the more effective treatment a practical description has been given. The author dwells at length upon the Bulgarian root treatment combined with physiotherapeutic measures which has given excellent results in his hands.

THE MANUAL OF MALADIES INFLUENCED BY OXALIC ACID POISONING. Viz. Industrial Myositis Fibrosa, Occupational Schizophrenia, and Experimental Wassermann and Kahn Tests. By Abel C. Anthony, B.S., M.D. Chicago: Consolidated Printing and Publishing Company, 1941. Price: \$2.00.

This independent observer presents in great detail, with many photostatic copies of reports, several cases of myositis fibrosa and schizophrenia from which he deduces chronic oxalic acid poisoning as the causative factor. He also indi-

cates the possibility of sodium oxalate as an exciting cause of cataract of the crystalline lens.

ROENTGEN TREATMENT OF INFECTIONS. By James F. Kelly, M.D., F.A.C.R., Professor and Director of the Department of Radiology, Creighton University School of Medicine; Attending Radiologist, Creighton Memorial St. Joseph's Hospital, St. Catherine's Hospital and Douglas County Hospital, Omaha, and Mercy Hospital, Council Bluffs, Iowa. With the Collaboration of D. Arnold Dowell, M.D., Assistant Professor of Radiology, Creighton University School of Medicine; Assistant Attending Radiologist, Creighton Memorial St. Joseph's Hospital, St. Catherine's Hospital and Douglas County Hospital, Omaha, and Mercy Hospital, Council Bluffs, Iowa. Chicago: The Year Book Publishers, Inc., 1942. Price \$6.00.

This report discusses the use of x-ray treatment in that third great field in which Roentgen therapy is effective; that is, treatment of infections. Most of the material is devoted to consideration of gas bacillus infection and peritonitis, although consideration is given to pneumonia and other types of infections. It is well written and the opinions are substantiated by numerous case reports and a review of the literature. The technique and the coordination of this therapy with sulfonamide drugs is also discussed. The use of small-size type makes it difficult to use this book except as a reference book. It is recommended to the surgeon and the roentgenologist.

DISEASES OF METABOLISM. Edited by Garfield G. Duncan, M.D., Chief of Medical Service "B," Pennsylvania Hospital; Associate Professor of Medicine, Jefferson Memorial College; Philadelphia, Pennsylvania. Philadelphia and London: W. B. Saunders Company, 1942. Price: \$12.00.

In a monumental work Duncan, together with a number of the well-known authorities, aims to provide the physician with a practical basis for understanding the diagnosis and treatment of the various metabolic orders. The fundamentals are reviewed and are interpreted in the light of recent investigative work. It is unusually practical for such an inclusive volume and is amply and well illustrated. It is recommended to any general practitioner especially interested in internal medicine.

NASAL SINUSES. An Anatomic and Clinical Consideration. By O. E. Van Alyea, M.D., Assistant Professor, Department of Laryngology, Rhinology, and Otolaryngology, University of Illinois College of Medicine, Chicago. A William Wood Book. Baltimore: The Williams and Wilkins Company, 1942. Price: \$6.50.

In 262 pages Van Alyea reviews the sinuses and their problems individually and collectively from the standpoint of the practicing rhinologist. Most of the rarities are omitted in order to simplify and make more practical the treatise. Treatment is ably considered. Many diagrams and pictures including colored plates aid in the simplified handling of the subject. It is recommended to all rhinologists.

DIABETES MELLITUS. By Zolton T. Wirtschafter, M.D., Clinician in Charge, Clinic for Diabetes, Department of Medicine, Mount Sinai Hospital, Cleveland; Visiting Physician, Department of Medicine, Cleveland City Hospital; Clinical Instructor in Medicine, School of Medicine, Western Reserve University, Cleveland; and Morton Korenberg, M.D., Former Fellow, May Institute of Medical Research, The Jewish Hospital, Cincinnati; Medical Resident, Jewish General Hospital, Montreal. A William Wood Book. Baltimore: The Williams & Wilkins Company, 1942. Price: \$2.50.

This monograph summarizes the fundamental principles involving the metabolism of carbohydrates, proteins, fats, minerals, vitamins, endo-

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The films were made at the Nutrition Clinic of the University of Cincinnati at the Hillman Hospital, Birmingham, Alabama, where studies were initiated in 1935, under the joint auspices of the Department of Internal Medicine of the University of Cincinnati and the University Hospitals of Cleveland. Subsequently, these investigations became a coöperative project between the Departments of Medicine of the University of Cincinnati and the University of Alabama, and the Department of Preventive Medicine and Public Health of the University of Texas.

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REMARKS ON THE NATURE AND TREATMENT OF TUBERCULOSIS*

E. L. SHURLY, M.D.
Detroit, Michigan

Mr. Chairman, Ladies and Gentlemen: I regret very much that I have not a written paper for this occasion, as I intended to have done. I shall therefore have to ask your indulgence for the deranged manner in which the subject will be presented.

As I understand the topic I am expected to speak of, it is "The Nature and Treatment of Pulmonary Tuberculosis." Of course, such a subject is of too wide a range, and will take up too much of your time for this occasion, and I shall therefore condense very much what I want to say, leaving out almost entirely any remarks upon the pathology, which is very important and interesting.

Allow me to say first, that I think a great deal of confusion arising at the present time over the subject of tuberculosis comes from lack of recognition of the several different states of the disease met with. There is no doubt but that it will be a long time before all the problems connected with the subject can be solved, and that many theories will have to be evolved. We are in the habit of sneering a little bit (if we be practical people), at the theories. After all, it is theory which must lead to the practical solution of all such questions.

Now, the prevalent theory is the bacillary one, that is, that the bacillus tuberculosis is the cause of all these several different states known as tubercular disease. We heard this morning a very excellent paper on Tuberculosis of the Joints, by Prof. Nancrede, a very philosophical and instructive paper; and you will remember that the author spoke of the bacillary action in the production of tuberculosis of the joints, although he did not insist upon it as inevitable. There are other surgeons, who believe that the bacillus tuberculosis has nothing whatever to do with such diseases of the joints. There are still

others who do not believe that many of these cases are tuberculosis. Of late years, several bacteriologists have discovered differences in the form and behavior of these bacilli, in their morphology, and I think the present tendency of opinion is towards the view that there are really several kinds of tubercle bacilli. In a very able paper published in the *Revue de Médecine* last October, Dr. J. Courmont, who spent a great deal of time in the investigation, shows that he had isolated three or four different families of tubercle bacilli. Now, is it not possible that all of these different families or varieties of bacilli may have different physiological characteristics, so to speak. While the morphology may not differ one from the other very much, physiology or life of the microbe may.

Then, again, there springs up, in an etiological sense, the great question of the ferments accompanying them. The universal decision that tubercular affections are due to operations of bacilli is based largely upon elaborate and convincing experiments, which are about as follows: The microbe is cultivated in a certain organic medium, then transferred from that to an animal; in the animal in turn is developed a tuberculosis, which again can be transmitted by inoculation to another animal, and so on; the disease in each having the same pathological feature. Now while this seems so plain, we lose sight of the fact which the chemist tells us, that there is present a ferment. What is the agency of the ferment? Recently Prof. Tamman has brought forward some views which are quite new and seem well proven, viz.: that there are in many organic materials certain unformed ferments, which are in given instances, as it were, in a state of equilibrium, one with the other, that the least thing may disturb this equilibrium, and cause the formation of active products. Even a little acid added to one, or a little water to another, will materially set the action going or

*Presented at the Twenty-seventh Annual Meeting of the Michigan State Medical Society, Flint, May, 1892.

change the result. This is a very important point to consider in connection with inoculating experiments, so that when we come to think of transferring this culture or that to an animal, we do not know how much or little of this ferment we transfer also. I do not believe anybody can stand up and with absolute certainty say that he has transferred nothing but the bacillus. He must have transferred with the microbe some unformed or active ferment, either the product of the bacillus, or extraneous to its life.

And therefore we do not know how much or little the disease process depends upon the ferment which is transferred with the microbe or the microbe itself. Hence, I believe in the present state of our knowledge it is unsettled whether the microbe, or bacillus, is the only cause of the diseased condition generally classed as tuberculosis. I also believe, and I think the drift of opinion is in this direction, that there are distinct clinical and pathological differences in these cases. For instance, I do not think, from a clinical standpoint, that so-called tuberculous joints, so-called tubercular pulmonary disease, leprosy, lupus, and tuberculosis of the peritoneum are identical diseases, I do not believe they are one and the same disease, although they may be closely related in some particulars. That brings us, then, to the practical consideration of the classification of such diseases. Every practitioner knows that there are certain forms or cases of disease, which he is unable to classify exactly by physical signs or by clinical history; and that there are certain differences clinically, no matter what identity laboratory examination may show regarding them. Some of these variations may be accounted for partly by the individual tendency to peculiarities, individual idiosyncrasies, but such consideration is not sufficient to account for the regular course of special cases. For instance, we have a case where there is no haemoptysis, where the cough comes on gradually but is a first symptom, while pyrexia and adynamia come on later and progressively, and after a while expectoration, etc. Upon physical examination of the chest, we find that there is gradual consolidation taking place in the upper part of one lung, and perhaps some lesion in the other lung, all of which progresses, the patient dies, and if an autopsy is made, there will be shown the ordinary morbid anatomy of a case of pulmonary tuberculosis. The course may cover a

period of several months, a year or more, yet another form will cover a period of several years. There is still another form—the mechanical—such as miners and grinders are afflicted with, where a great many years are consumed in the course of the disease, and again another very decided form, where the course is very rapid but differing from acute miliary tuberculosis in this respect, that the lesion initially, and all the time, is confined to the lung; after a little time, the whole pulmonary tissue seems to liquefy. Such cases are typical. You will all recognize them. We meet with them frequently. But they are not one and the same thing, and moreover, it does not change the result whether the family history be bad or good always, but if the domestic history has been good or bad it may modify the course of the disease. These cases, then, are so frequently typical that we must recognize them at least as varieties of pulmonary disease; in all of these examples mentioned, the lungs have been the seat of the principal lesion, therefore, they must be cases of phthisis. Now, we believe that all of such cases of so-called phthisis pulmonalis are essentially inflammatory; that the tubercular process is a secondary one; that the majority are ordinary catarrhal pneumonias, and whatever of tuberculosis comes, is secondary. This view, however, does not militate against the prevalent theory of the bacillary origin of tuberculosis or phthisis pulmonalis, inasmuch as it is said by everyone, that there must be a nidus for the germs to grow upon. Why they do not always occur and develop in all cases of catarrhal inflammation of the air passages is a mystery. However, we know as a fact they do not. Allow me for a moment by way of diversion to call your attention to laryngeal phthisis, one of the most horrible diseases that can affect the human being. This disease, as you know, is very obstinate. It appears in two general forms, and has peculiar features. There are very few cases of laryngeal phthisis which are secondary to pulmonary tuberculosis. It is often coincident with pulmonary disease, it is true, but it is not often secondary. Yet what a large number of cases of pulmonary phthisis occur without any laryngeal complication whatever, without laryngeal phthisis? Is it not strange?

In chronic laryngitis, even with erosion, no pulmonary phthisis, no tuberculosis necessarily follows. Why should this be, if the bacilli are

constantly traveling this tract, and only waiting for a little opening on good ground? Hence there must be other etiological factors to be taken into consideration in any description of the nature of this disease, called pulmonary phthisis. To sum up, I should be inclined to think that the nature of pulmonary tuberculosis, or pulmonary phthisis, was essentially inflammatory in the beginning, whatever subsequently may follow. This view does not seem unreasonable in the light of clinical history, but I admit it may seem unreasonable in the light of laboratory experiments as conducted at the present day. Deductions from these, however, are undergoing great change. If it be true that common phthisis pulmonalis be an inflammatory affection, it gives us some encouragement toward endeavors to mitigate its inevitable course and result. On the other hand, if it be always specific, dependent upon the invasion and operation of bacilli alone, then there is no hope. Regarding treatment, which has been generally unsatisfactory, we find many difficulties.

At the outset, in almost all cases, one of the most troublesome symptoms we meet with is anorexia, which precludes the establishment of any sort of nutrition for the benefit of the patient, and which constitutes one great drawback to all treatment. Perhaps I am a little ahead of my story, for I ought to specify that we have three classes of cases to deal with: acute, sub-acute, and chronic. That is, excluding what is called miliary or general tuberculosis.

But anorexia is common to all, and one of the first difficulties to be overcome and thought of. Those of us who have had large experience with these diseases, become very much discouraged in attempting to keep up the nutrition of the patient on account of this symptom, especially if we are obliged also to administer by the stomach all sorts of medicines, oils, etc. But this has been the ordinary mode of treatment, the applications of medicines in the usual way, by the stomach. And we know how very few patients will tolerate it for any great length of time without great increase of anorexia. This is especially true of the cough balsams and syrups and oils. Therefore, it seems very desirable to adopt any method of medication which may be useful other than stomachal. Now, we have two things before us in this direction. One is climatic treatment, and the other is treatment by means of inhala-

tion or hypodermic medication, or both. Climatic treatment is so efficacious and well known that I need not speak of it here. I would remind you, however, as a proof that the bacillus is not the only cause of the disease in question, that this microbe will operate just as well in Colorado and California as in Michigan, notwithstanding the claim of enthusiasts that the atmosphere of the former states is aseptic, and, if not indigeneous there, they are taken there, and probably flourish, since cases of phthisis pulmonalis or tuberculosis originate there and run the same course as in Michigan. But outside of this, we do know that a favorable climate is one of the most useful factors in treatment, for, by putting the patient into position to get plenty of fresh air (oxygen) as necessary as other nutrition; by putting the patient in the way of receiving plenty of heat and light, and the benefit of the actinic rays of the sun, together with dry atmosphere, undoubtedly we place him in a position of great advantage.

Regarding medication, we consider of first importance the hypodermic method because the medicine is introduced into the system in its pure state, undergoing no change by contact with the secretions of the stomach or intestines; besides, whatever good it does in a selective way, the system may get the full benefit. This we believe is the preferable way, whether the disease be much localized in the lung or not. Notwithstanding particular localization, there is always spontaneously generated from this source a certain amount of septic poison, so that cases of phthisis pulmonalis are essentially forms of septicemia, a general septicemia of some sort induced by the circulation of some toxic material which poisons the tissues generally. This seems perfectly rational, and ought to be very generally accepted. Now, if we can introduce something into the economy that will neutralize the septic material, of course, we take a step forward. It is claimed by many that nothing but a colloid substance—organic—can be expected to act permanently in this way to neutralize an animal poison. We have not time to go into this question which, together with a great many other such questions, may be relegated to the chemist, who in the near future must settle many mooted points of pathology. I will only say that this is certainly not borne out in practice. For we may

(Continued on Page 448)



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(Continued from Page 446)

introduce an alkaloid into the general system with as much hope of its producing a permanent, prompt, and selective effect, as though it were colloid; it is not necessary, then, that it be an animal poison. However, while we can produce such effects from an alkaloid just as well as a colloid the effect is not as lasting, because there are no secondary or cumulative effects excepting upon the nervous system, so that the injections must be repeated.

Therefore, I still believe that is the proper and rational method of systemic treatment. We prefer iodine and chloride of gold and sodium, but perhaps iodine and chloride of gold and sodium may not be the best chemicals. There may be found some others that will answer the purpose better. Undoubtedly there will be, but these two chemicals have done much good in pulmonary phthisis of the earlier stages. But, of course, they are not capable of controlling the septicemia which occurs in a large class of cases. Take, for instance, a case showing evidence of tuberculosis affecting the mesenteric glands as well as the lungs: it is very difficult to put enough of any chemical into the system without getting a toxic effect, to neutralize it. Besides this method, we may be able to modify the source of poisoning by proper inhalations, antiseptic inhalations of some sort. When there are patches of caseation that are accessible to the bronchial tubes, by the use of some gas which can reach that part, in this way a cutting off of the source of septic material may be obtained, and for that reason different gases have been used from time to time. Chlorine gas has been used at different times, but abandoned because irrespirable; however, it has been found practicable for inhalation when properly used, mixed with salt spray, and the cases properly selected for it. We may use also the antiseptic balsams for the same purpose. These not only have a local effect in quieting the immediate symptoms known as cough and so on, but certainly have the ulterior effect of cutting off the supply of septic material. So that, so far as the therapeutic indications are concerned, there seems to be two: one to limit the extension of the disease, and the other to neutralize the septic material that is being generated from hour to hour in the course of the disease. One thing that for many years has given me great hope that we might achieve something in the treat-

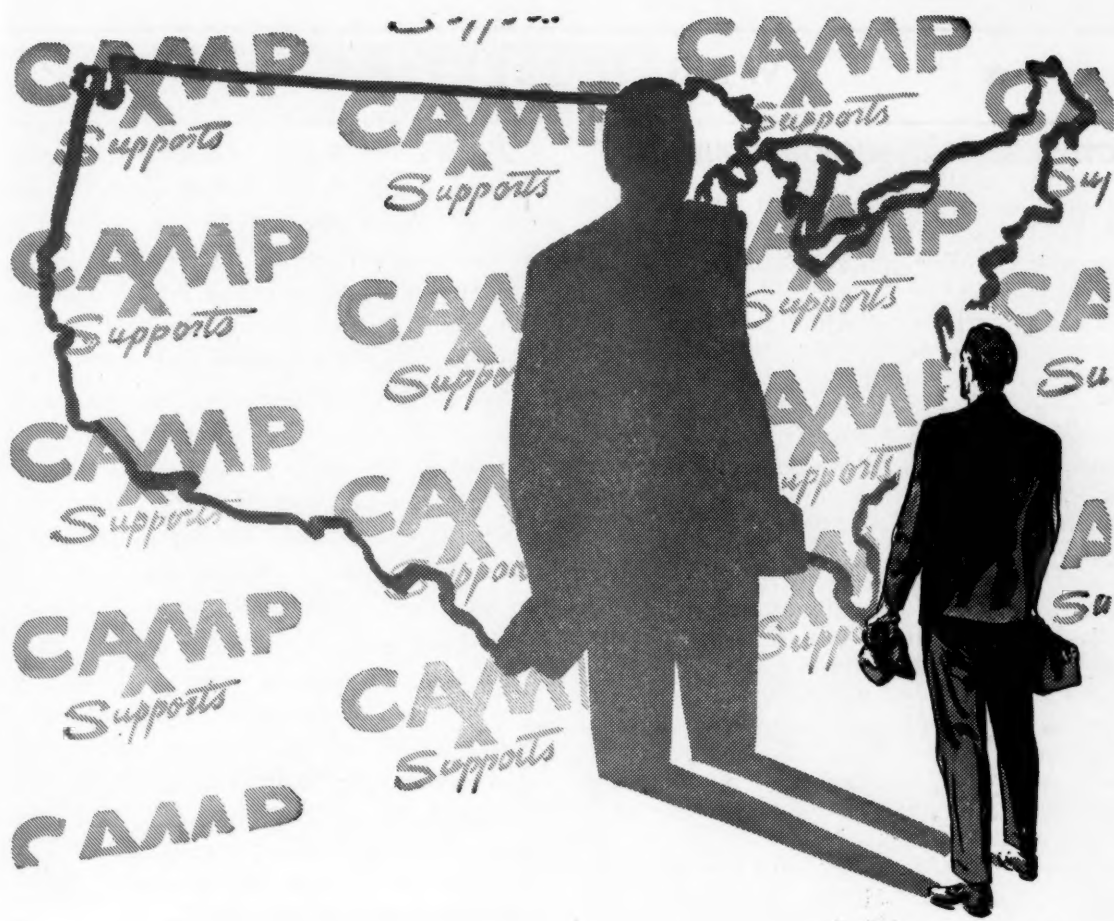
ment of phthisis pulmonalis, is that a great many of the local changes, the pathological changes, which take place in the lung, are really conservative. They are nature's efforts to limit the disease, and to throw off the materies morbi, whatever it may be.

COUNCIL AND COMMITTEE MEETINGS

1. Wednesday, May 6, 1942—Committee on Distribution of Medical Care—Hotel Olds, Lansing—3:00 p.m.
2. Sunday, May 10, 1942—Syphilis Control Committee—Hotel Olds, Lansing—5 p.m.
3. Thursday, May 14, 1942—Executive Committee of The Council—Hotel Statler, Detroit—4:30 p.m.
4. Thursday, May 14, 1942—Cancer Committee—Woman's League, Ann Arbor—6 p.m.
5. Friday, May 15, 1942—Maternal Health Committee—Hotel Statler, Detroit—12 noon.

COUNTY MEDICAL SOCIETY MEETINGS

- Bay-Arenac-Iosco*—Wednesday, April 29, 1942—Bay City—Speaker: Frank A. Weiser, M.D., Detroit—Subject: "Nephritis"
- Calhoun*—Tuesday, May 5, 1942—Battle Creek—Speaker: Traian Leucutia, M.D., Detroit—Subject: "Aspects of Radiation Therapy of Interest to the General Practitioner."
- Genesee*—Tuesday, May 12, 1942—Flint—Business meeting and special entertainment.
- Hillsdale*—Thursday, May 14, 1942—Hillsdale—Speaker: Ben Goodrich, M.D., Detroit—Subject: "Rheumatic Fever."
- Ionia-Montcalm*—Tuesday, May 12, 1942—Ionia—Program by staff of Ionia State Hospital under the direction of P. C. Robertson, M.D.
- Jackson*—Tuesday, April 21, 1942—Jackson—Speakers: Elmore C. Vonder Heide, M.D., Detroit and Allan C. Barnes, M.D., Ann Arbor—Subjects, respectively—"Therapeutics of Whole Blood, Plasma and Serum," and "Estrogenic (steroid) Hormones."
- Kent*—Tuesday, May 12, 1942—Grand Rapids—Program on "Office Management of the Cardiac Patient" in which the following physicians of Grand Rapids participated: J. W. Riggerink, M.D., H. C. Robinson, M.D., Ward Chadwick, M.D., J. R. Brink, M.D., J. P. Marsh, M.D., and Wm. L. Bettison. Also Russell deAlvarez, M.D., Ann Arbor, spoke on "Report of the Obstetrical Survey of 1940."
- Macomb*—Tuesday, May 19, 1942—Mt. Clemens—Speaker: Frank Van Schoick, M.D., Jackson—Subject: "Immunization Program."
- Muskegon*—Friday, May 15, 1942—Muskegon—Speaker: Walter C. Alvarez, M.D., Rochester, Minn.—Subject: "Care of the Nervous Patient."
- Oakland*—Wednesday, May 13, 1942—Rotunda Inn—Speaker: Walter C. Alvarez, M.D., Rochester, Minn.—Subject: "Puzzling Conditions of the Abdomen."
- St. Clair*—Tuesday, April 21, 1942—Port Huron—Business Meeting. Tuesday, May 12, 1942—Port Huron—Speaker: F. F. Yonkman, M.D., Detroit—Subject: "Sulfa Derivatives."
- Washtenaw*—Tuesday, May 12, 1942—Ann Arbor—Speaker: Robert Cummings, M.D., Ann Arbor—Subject: "Results of Bilateral Orchidectomy in Carcinoma of the Prostate."



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WAR BULLETINS



SELECTIVE SERVICE MEMORANDUM

Memorandum (M-273) issued to all Local Boards and Appeal Boards by the Selective Service System, Michigan Headquarters, re Doctors of Medicine:

1. The shortage of doctors of medicine in the Army is more serious than at any time in the history of this country.

2. *Every local board should at once reopen the classification of all doctors of medicine of the first and second registrations only.* The doctors should then be urged to apply for commissions. This includes all doctors that may be classified at the present time in I-B, II-A, II-B, III-A or IV-F and those who have previously been rejected by the armed forces for commissions since there has been a radical change in the physical standards for medical officers.

3. In case of dependency claims, advise them that the family income will be much greater as a commissioned officer than it will be under the proposed allotment plan on an enlisted basis. The minimum monthly pay and allowances for a medical officer with dependents is \$262.67.

4. Doctors should apply for Commission through Lt. Col. J. G. Slevin, M.C., Room 320, Federal Building, Detroit, Michigan. They should know within a week whether they are acceptable for a commission since the entire processing will be done by the Detroit office. It is no longer necessary to wait several weeks or months for a commission. Even though an application may be pending, they should apply also through the above officer.

5. At the same time the Local Board should, through State Headquarters, contact the State Procurement and Assignment Committee concerning each individual doctor.

E. M. ROSECRANS,

May 8, 1942

State Director

MEDICAL OFFICER RECRUITING

The urgent need of the Army for 21,500 medical officers before the end of the year and for 7,000 of this number by July first, was forceably impressed upon the physicians of this state by a recent letter from Dr. Paul R. Urmston, chairman of State Procurement and Assignment Service to all members of the State Society. Since this letter was mailed early in May, the actual machinery of granting commissions through the Medical Officer Recruiting Board has been placed in high gear. The Board, composed of Lieut. Col. Paul R. Priestly, representing the Adjutant General and Lieut. Col. John

G. Slevin, the Surgeon General's representative, opened headquarters at 320 Federal Building, Detroit. With the aid of volunteers from the Women's Auxiliary of the Wayne County Medical Society, the Recruiting Board began to function immediately. During the first week twenty physician applicants were processed.

While the first physician-recruits came from Wayne County, the recruiting drive spread throughout the lower portion of the state. During the last two weeks of May the Recruiting Board interviewed applicants at Kalamazoo, Flint, Jackson, Battle Creek, Lansing and Grand Rapids. In all, twenty-two counties were covered.

Recruiting activities were carried on at Bay City June 4, Saginaw June 5, Benton Harbor June 11, and at the station hospital, Fort Custer June 12 and 13. The Detroit office is prepared to interview personally any interested physician.

Any doctor of medicine under forty-five who is an American citizen, a graduate of a Class A medical school, who has completed one year of internship and is licensed to practice medicine and is actually engaged in ethical practice may apply for a commission in the Army. However, the Recruiting Board can grant commissions only to those physicians who have been certified as available for military service by the State Procurement and Assignment Service. Thus, physicians essential to the health and welfare of the community will not be permitted to enter military service.

Commissions will be granted in the grade of first lieutenant to those under the age of thirty-seven. Between the ages of thirty-seven and forty-five, physicians with unclassified training will be offered commissions as captains. Qualified specialists under thirty-seven may be commissioned as captains. These groups will be commissioned by the Medical Officer Recruiting Board without reference of their applications to higher authority. Specialists between 37 and 54 who desire to apply for the grade of Major will have their papers processed by the Recruiting Board and then referred to the Surgeon General for final action. It is the policy of the War Department to grant commissions in the grade of major only to those specialists who can qualify

(Continued on Page 452)



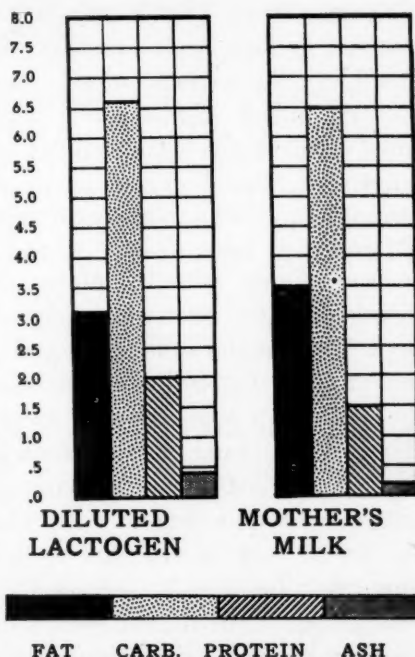
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*John Lovett Morse, A.M., M.D.
Clinical Pediatrics, p. 156.*



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(Continued from Page 450)

as chief of a service or section in a large military hospital.

The War Department has stated that for the purpose of granting commissions it will consider as specialists only those physicians who are diplomats of American Specialty Boards, Fellows of the American College of Surgeons or American College of Physicians or who have completed formal postgraduate training such as is required to be eligible for examination by an American Specialty Board, including the required number of years of practice in that specialty. In practice, the Medical Officer Recruiting Board of Michigan will be guided, according to Col. Slevin, by the advice in individual cases furnished by the Regional Office of Procurement and Assignment Service.

The Recruiting Board will receive applications from those who desire assignment to the Air Corps.

INSURANCE PROTECTION FOR SERVICEMEN

What are insurance companies doing to preserve the present insurance protection that is carried by policyholders who enter the armed forces of the United States?

The answer of one of the largest insurance companies is that, under the anti-discrimination statutes of the various states, insurance companies are unable to forego the payment of premiums required by their policies, and no such arrangement, therefore, is in operation or in contemplation. The "anti-discrimination statutes" relate to laws similar in all states which have been passed with the object of forbidding discrimination by insurance companies between policyholders of the same class and equal expectation of life; that is to say, an insurance company is under a legal duty to accord to policyholders of the same class identical treatment, giving to each of them the same benefits and privileges and requiring of them the same burdens. In no state is any law to be found suggesting that because a policyholder is in the armed forces of the nation, such individual is to have insurance protection without payment therefor. No class is specially favored. According to the insurance companies, if premiums are not paid, the company is not alone powerless but is forbidden by law to grant insurance protection.

The problem of preserving the servicemen's

protection resolves itself therefore into devising means whereby premiums can be paid automatically, *either in cash or by loans*.

Under the Soldiers' and Sailors' Civil Relief Act, a serviceman can apply for government assistance in the payment of premiums on any amount of life insurance up to \$5,000. Application is made to the Veterans Administration, and if approved the government advances the premiums as they become due. These advances, with interest, will eventually be repaid to the government (within one year after the man in service is mustered out).

Realizing that conditions arising out of service, absence from home, capture by the enemy, missing in action, etc., might jeopardize the continuance of insurance protection, Public Law 490 was approved by the President of the United States and became effective on March 7, 1942. Under the provisions of this law the Allotment Officers of the various services are given authority to pay insurance premiums by pay allotment, without the authority and consent of the insured, if, in their opinion, such action is necessary to protect the insured or his dependents. This law, permitting the Allotment Officers to act for the insured when he is not in a position to attend to his own affairs, should be of great benefit to the serviceman and his dependents.

Notwithstanding efforts that are being made to continue insurance in force, there will be cases where, because of reduced income, it will not be possible for servicemen to pay the premiums on all the outstanding insurance on their lives. In some of these cases it may be more advisable to allow part of the insurance to operate under the Continued Insurance or Paid-Up features of the contract, rather than to continue the policy in full force by means of a policy loan.

To illustrate, if a person aged 35 obtained a \$5,000 Whole Life policy during the year 1935 and permitted the policy to lapse after an annual premium of \$112.80 had been paid for a period of 6 years, he would at that time have had available as a cash surrender value \$345.00, or in lieu of the surrender value he could have directed within a period of 3 months after the due date of the premium in default that his equity in the policy be applied to provide \$740.00 of paid-up life insurance payable in the event of his death; or by taking no action at all the equity

WAR BULLETINS

in the policy would be applied automatically, in accordance with the conditions of the policy, to continue the \$5,000 of insurance protection in effect for a period of seven years and five months running from the due date of the premium in default. The longer the policy is in force, the larger the cash surrender value, and consequently the amount of paid-up insurance or the period of term insurance would increase with the increase in the number of years premiums had been paid.

It is respectfully recommended to physicians who anticipate service in the armed forces that they request information of the companies with which they have insurance policies. Some of these companies have already created War Service Insurance Bureaus, in order to help policyholders who, because of war conditions, are unable to maintain all their insurance in force.

The above applies only to insurance held with private companies—not to the protection of \$10,000 maximum which is offered to men in service by the U. S. government.

QUESTIONS AND ANSWERS

1. *Question:* Is a veteran of the World War, who has now enlisted for active service with the United States Forces, entitled to the \$10,000 government insurance in addition to the \$10,000 insurance which was offered and accepted by him in the World War?

Answer: No one person may under the authority of Law carry more than \$10,000 in United States Government life insurance and National Service life insurance combined at any one time.

2. *Question:* When a doctor of medicine is assigned to "limited service" in the armed forces of the United States, what type of work will he perform?

Answer: A doctor of medicine who is placed in limited service will probably not see service in the field. He will be used in administrative work and in hospitals that are more or less fixed, such as station hospitals. He probably will not leave continental United States.

PROCUREMENT AND ASSIGNMENT FORMS AND QUESTIONNAIRE

Every Michigan physician should have received a new Procurement and Assignment

Form and Questionnaire during the last week in April. *Any physician who did not receive these documents* should drop a postal card to the National Roster of Scientific and Specialized Personnel, 916 G. Street, N. W., Washington, D. C., asking that the forms be mailed to him.

It is the hope of the Procurement and Assignment Service that each physician will complete the forms IMMEDIATELY and return them to Washington in the envelope which accompanied the forms.

Physicians who are willing to offer their services for active military service should indicate same on the enrollment form. Physicians who cannot qualify for military service because of physical conditions or age, or who believe their ability and experience can be of more value to the country if they were to serve in some other capacity, should indicate their preferences on the enrollment form. The information asked on the questionnaire should be given in full.

Signing the enrollment form does not carry with it any compulsion. This is the big distinction between Procurement and Assignment Service and Selective Service.

DISTRICT CHIEFS, MICHIGAN CIVILIAN DEFENSE

District 1

Chief: G. C. Penberthy, M.D., 1553 Woodward Ave., Detroit

Deputy Chief: Bruce Douglas, M.D., Detroit Dept. of Health

District 2

Chief: Howard H. Cummings, M.D., 216 S. State St., Ann Arbor

Deputy Chief: Hugh Beebe, M.D., 326 N. Ingalls St., Ann Arbor

District 3

Chief: Matthew R. Kinde, M.D., W. K. Kellogg Foundation, Battle Creek

Deputy Chief: Robert B. Harkness, M.D., Hastings

District 4

Chief: Burton R. Corbus, M.D., 110 Fulton St., S.E., Grand Rapids

Deputy Chief: Charles V. Crane, M.D., 124 Fulton St., E. Grand Rapids

District 5

Chief: F. T. Andrews, M.D., Bay County Health Dept., Bay City

Deputy Chief: John T. Connell, M.D., Dryden Bldg., Flint

District 6

Chief: B. H. Van Leuven, M.D., Grand Traverse County Health Dept., Traverse City

Deputy Chief: Mark Osterlin, M.D., Central Michigan Children's Clinic, Traverse City

District 7

Chief: C. P. Drury, M.D., Marquette City Health Dept., Marquette

Deputy Chief: N. J. McCann, M.D., Ishpeming

MICHIGAN PHYSICIANS IN MILITARY SERVICE

The following list is supplementary to the lists which appeared in the April and May issues of THE JOURNAL. Accurate information is solicited from the readers of THE JOURNAL in order to make the list of Military Members complete. Names and addresses, together with the rank of the medical officer, should be addressed to the Michigan State Medical Society, 2020 Olds Tower, Lansing, Michigan.

Alpena-Alcona-Presque Isle—Harold Kessler, M.D., Selfridge Field, Michigan.

Bay-Arenac-Iosco—Wm. H. Gronemeyer, 1st Lieut., MC, USA, Camp Barkeley, Texas; Joseph C. MacPhail, Lieut (j.g.), MC, USNR, Navy Yard, Charleston, S. C.

Berrien—Bouton Sowers, Lieut. Commdr. U. S. Navy, Naval Hospital, Mare Island, Calif.

Calhoun—James D. Sleight, Capt., MC, USA, Sheppard Field, Texas.

Gratiot-Isabella-Clare—Don K. Barstow, 1st Lieut., MC, USA, Mather Field, Calif.; E. C. Dale, 1st Lieut., MC, USA, Fort Custer, Michigan.

Ingham—Charles R. Doyle, MC, USA, Fort Douglas, Utah; Kenneth H. Johnson, 1st Lieut., MC, USA, Geiger Field, Washington; Frederick C. Swartz, MC, USA, Fort Douglas, Utah; Roy O. Webb, MC, Sixth Corps Area Headquarters, Chicago, Illinois.

Jackson—J. E. Ludwick, MC, USNR, New Orleans, La.

Kalamazoo—Carl Rex Moe, U. S. Navy (home address Kalamazoo); Wm. J. Clerk, MC, Fort Knox, Kentucky.

Kent—Harrison S. Collisi, Major, MC, USA, Billings General Hospital, Fort Benj. Harrison, Indiana; George T. Aiken, Capt., MC, USA, (home address Grand Rapids).

Macomb—P. T. Mulligan, Capt., MC, USA, Sheppard Field, Texas.

Menominee—Walter F. Sethney, 1st Lieut., MC, USA, Hill Field, Ogden, Utah.

Wayne—Wayne A. Geib, 1st Lieut., MC, USA, Camp Devens, Massachusetts.

The following changes regarding those whose names appeared in previously published lists have been received in the Executive Office:

Captain I. C. Berlien, MC, informs us that he has been moved from Detroit to the Kalamazoo Induction station.

Captain L. Grant Glickman has been promoted from 1st Lieutenant and is now stationed at Fort Warren, Wyoming, induction station.

Major Richard D. Mudd, formerly of Saginaw, sent a chronological list of his addresses since April 19, 1941, when he entered active military service. Major Mudd has been stationed at Scott Field, Illinois; Fitzsimons General Hospital, Denver, Colorado; Carlisle Barracks, Pennsylvania; and at the present is Surgeon, Duncan Field, San Antonio, Texas.

1st Lieut. Ben Marks has been transferred from Detroit to the Kalamazoo Induction station.

Laurence M. Hilt, formerly of Grand Rapids, holds the rank of Lieutenant Commander in the U. S. Navy and is stationed at the Naval Hospital, Mare Island, California.

Captain Frank H. Power, MC, formerly of Ann Arbor, has been transferred from Fort Jackson, South Carolina, to Gorgas Hospital, Ancon, Canal Zone.

Information has just been received reporting the promotion of Sol C. Grossman to the rank of Captain. Captain Grossman is stationed at Kalamazoo.

Corrections

The April issue of THE JOURNAL carried the name of Captain Edwin M. Williams, Randolph Field, Texas. This should have been Captain Edwin M. Williamson, Randolph Field, Texas.

Through error, the name of Lt. Colonel T. P. Vander Zalm, MC, formerly of Lansing, now at the Station Hospital, Camp Hulin, Texas, was omitted from the list published in the April JOURNAL.

John Wellman, formerly of Lansing, has been promoted to the rank of Major and is stationed at Lawson General Hospital, Atlanta, Georgia.

Kenneth W. Toothaker, formerly of Lansing, is Lieutenant, Sr. Grade, in the Navy.

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*Laryngoscope, Feb. 1935, Vol. XLV, No. 2, 149-154. Laryngoscope, Jan. 1937, Vol. XLVII, No. 1, 58-60

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READERS' SERVICE



ARTERIAL HYPERTENSION—FORTY YEARS IN RETROSPECT

To this date there has been no brilliant and revealing light shed upon the obscurities surrounding the problem of high blood pressure. We welcomed with great interest the arrival of the first clinical sphygmomanometer. Greatly as this instrument has added to our exact knowledge and widened our interest in circulatory diseases and indispensable as it has become, it has often occurred to me, looking at the matter from a different angle, that it might have been better for mankind in general if this instrument had never been adapted for clinical use and become so universally employed, but had remained as it originally was—an item of laboratory technology. By dealing in precise figures to gauge a phenomenon we understand so imperfectly, we establish false values to confuse our own judgment and often hopelessly shatter the patient's peace of mind.

It is stated that 50 to 75 per cent of all deaths from C.V.R. disease, estimated to be 500,000 yearly, are due to essential hypertension. The generally accepted belief is that it is in the first instance a functional perversion—a generalized vascular hypertonus, progressively elevating peripheral resistance in the precapillary bed under some morbid stimulation. The biochemistry of the body has been raked to identify some organic derivative that might act in this manner, the products of chronic infection have been examined, man's psychic experiences and social misfits and his environmental experiences all have been subjected to minute consideration and analysis, but to little avail.—ARTHUR R. ELLIOTT, M.D., Chicago, Illinois (See Page 463).

CHONDROMA OF THE TONGUE

Neoplasms of the tongue are common, but the cartilaginous type is very rare. The cartilage cells have rather active proliferative powers, possess amoeboid properties and are readily subject to metaplastic changes. Etiological factors of tongue tumors are unknown but tongue injuries are predisposing causes. In this case the tumor caused no symptoms over twenty years. Removal of the cartilaginous tumor in most cases gives complete cure.—JOSEPH JOHNS, M.D., Ionia, Michigan (See Page 471).

IS THERE A CLINICAL SYNDROME CHARACTERISTIC OF HYPERTROPHIC GASTRITIS?

Nearly 15 per cent of 600 gastroscopies showed hypertrophic gastritis. This disease has been

reported by many authors as having a symptom complex resembling peptic ulcer.

Fifty cases of hypertrophic gastritis were analyzed. Almost all the patients complained of abdominal pain, and in over half it was in the epigastrium. Relief by alkali and food was less constant than patients without peptic ulcer. The lesions were diagnosed by gastroscopy but in only one case by x-ray. The ratio of males to females having the disease was approximately 7 to 1. In two-thirds of the cases occult blood was present in the stools. The gastric analyses were on the high side of normal. The patients were treated by a modified ulcer regime for the most part, but two received deep roentgen ray therapy.—H. M. POLLARD, M.D., and R. R. COOPER, M.D., Ann Arbor, Michigan (See Page 473).

TULAREMIA, ENDEMIC IN SOUTHERN MICHIGAN

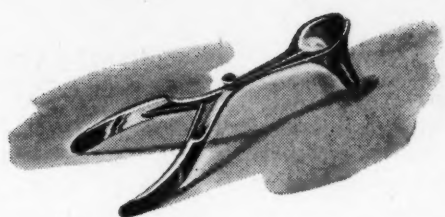
A localized outbreak of ten cases of tularemia in Michigan is described, each of these cases being of the ulceroglandular variety. A patient presenting indolent, furuncle-like lesions, usually about the hands, with indefinite systemic symptoms suggestive of an acute infection, and painful, tender, regional adenopathy should make the physician suspicious of tularemia, especially if there is a history of handling wild rabbits. Laboratory aids in the diagnosis of this disease are the agglutination test and animal inoculation, the latter being the more reliable of the two. As to treatment, surgical intervention for the purpose of incision and drainage is contraindicated unless suppurating adenopathies are encountered. Of the sulfonamides, sulfathiazole gave the best therapeutic results in this series. Symptomatic treatment is an important adjunct in the therapy of all cases of tularemia.—EDWARD PHILIP CAWLEY, M.D. (See Page 476).

FOCAL INFECTION IN THE NOSE AND THROAT—RETROSPECT AND FORECAST

Sound medical opinion in 1941 regarding focal infection is very different from the concept as originally formulated twenty-five years ago. Adequate references for this conclusion are given.

The nose and throat evidence is that sinuses when infected are rarely the cause of systemic disease, that the positive relationship of infections in the tonsils to systemic disease is not invariable, and that the removal of harmless tonsils as a prophylactic measure is unjustified in the majority of cases.

(Continued on Page 458)



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JUNE, 1942

Say you saw it in the *Journal of the Michigan State Medical Society*

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In spite of this, other current articles show that many writers have not kept abreast of the times. The public and the mass of the medical profession as well require to be told in no uncertain terms that the removal of a presumed focus of infection is not the Utopian short cut to the eradication of disease.—D. E. STAUNTON WISHART, M.D., Toronto, Canada (See Page 478).

TREATMENT OF FACIAL WOUNDS DUE TO EXPLOSIVES

In the present national emergency we may expect to be called upon to treat wounds, due to explosions, both in civilian and military life. For this reason it was thought advisable to review briefly the high lights of the plastic repair of such injuries.

Of greatest importance in this treatment is the conservation of soft tissues of the face and its bony framework; careful elimination of powder marks, cinder marks, etc., as the first treatment may save marked disfigurement later; the early skin grafting of large denuded areas, chemical burns, etc., should minimize the deformities.

Extensive plastic repairs must be delayed for several months, but many mutilated victims can be improved immensely by patient plastic procedures.—CLAIRE L. STRAITH, M.D., Detroit, Michigan (See Page 484).

STAPHYLOCOCCUS MENINGITIS—CASE TREATED BY SULFADIAZINE WITH RECOVERY

A case of staphylococcus meningitis is reported which was treated successfully by sulfadiazine. A sixty-four-year-old hypertensive cardiac developed drowsiness, headache, neck rigidity and fever thirty-six hours after the onset of acute otitis media. Mastoid x-rays were negative. The spinal fluid was cloudy, contained 1,233 cells and showed *Staphylococcus aureus* on culture. One gram of sulfadiazine was given every 4 hours by mouth. After six days the patient regained consciousness and her temperature dropped to normal. By the tenth day she was symptom-free except for weakness, her spinal fluid was sterile and contained only thirteen cells. Sulfadiazine is recommended for this disease because of its low toxicity and its diffusibility through the meninges.—By WILLIAM S. McCUNE, M.D., Petoskey, Michigan (See Page 487).

According to the "Information Service," issued bi-monthly by the Birth Control Federation of America, France's low birthrate of 14, as against India's rate of 48, Japan's 30 and Italy's 23, has done her no good and is not nearly low enough. It seems that she is still greatly overcrowded, since "only about 2 per cent of agricultural properties are more than 16 acres in extent." Her standard of life, it is alleged, is correspondingly low.—*New York Times*.

FACTUAL DATA RE MICHIGAN MEDICAL SERVICE

Enrollment.—There are almost half a million subscribers enrolled in Michigan Medical Service—469,075 in the Surgical Benefit Plan and 5,504 in the Medical Service Plan. The number of subscribers has more than doubled each year (March, 1940—58,679; February, 1941—131,199; February, 1942—443,291).

Income.—Payments from these subscribers total an income of \$225,000 monthly, collected in advance as a guarantee of payment of services from doctors. This prepayment of medical bills means distribution of approximately \$10,000 each working day to physicians. About 5,000 cases are reported each month.

Coöperation of Physicians.—A total of 3,539 doctors of medicine are registered as participating as of May 14, 1942. This means that approximately 80 per cent of the doctors of medicine in active practice are participating in the program.

Payments.—Services rendered have been paid at 100 per cent of the Schedule of Benefits, which is established by the physicians themselves through committees representing practically all types of practice, during twenty-one out of the twenty-seven months the plan has been in operation. During the past eight months payments have been made at 100 per cent. \$1,691,401.60 represents the cash payments made to physicians since the program began. Over 3,200 physicians located in every county in the state have received payments for services to subscribers.

ONTARIO MEDICAL WELFARE PLAN

For the past seven years, medical care and medication have been provided to relief recipients throughout the Province of Ontario, Canada, in accordance with an arrangement between the Department of Public Welfare and the Ontario Medical Association. Effective April 1, 1942, the plan was extended to include all Old Age Pensioners, Blind Pensioners, and Mothers' Allowance beneficiaries and will be known as the Medical Welfare Plan.

The March, 1942, issue of the *Ontario Medical Association Bulletin* outlines fully the provisions and arrangements of this new extended program.

For the payment of 50 cents monthly by the Ontario Government for each person in the relief categories designated, the Ontario Medical Association arranges for the provision of home and office general practitioner services, including provision of commonly used drugs in minimum quantities. The fund of money collected has been sufficient to pay physicians approximately one-half of the prevailing charges for their services to these indigents.

Medical care for hospitalized patients, sur-

(Continued on Page 460)

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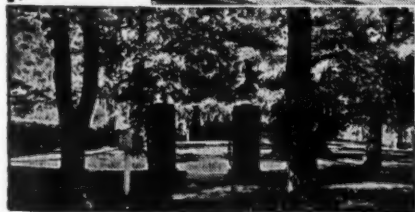
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(Continued from Page 458)

gery, x-ray, specialist treatment, and expensive medications are not included.

As to the value of the program, the following statement is made in the *Ontario Bulletin*:

"The great majority of general practitioners in Ontario are participants in the plan. For this there are two main reasons:

"1. It is recognized that, whether we want it or not, a state plan for medical care is in the offing, and the only way to avoid political and lay domination in medical matters is to continue handling medical administration ourselves.

"2. Those doctors who participate in the plan receive some monetary recognition for their care to indigents which, however, does not include any payment for surgery or other services to hospitalized patients."

E. W. Vanstone, secretary of the Ontario Medical Association Medical Welfare Board, which conducts the administration of the program, indicates that the additional beneficiaries will total approximately 100,000 persons.

RATIONED TIRES AND PHYSICIANS

Beginning January 5, 1942, automobile tires and tubes were rationed "only to persons performing a function essential to the war effort or to the health and welfare of the nation as defined in the rationing order issued by the Office of Production Management, and signed by the President." Among those vehicles designated for which tires may be obtained are "those which are operated by physicians, surgeons, visiting nurses, or veterinaries, and which are used principally for professional services." Tires may also be rationed to ambulances, certain busses and trucks.

The Office of Price Administration, which has charge of the tire rationing program for the nation, interprets the eligibility of physicians automobiles as follows: "The board shall issue certificates for vehicles in this class only to doctors, nurses and veterinaries, whose professional practice is to make regular calls outside their offices and who use automobiles to make their professional calls. No certificate shall be issued unless the doctor, nurse or veterinary applying, shows that the particular car on which the tire or tube is to be mounted is actually used for professional calls and is used principally for that purpose."

Application forms for new tires are available at each approved tire dealer or garage, post office, police station and the office of the local Tire Rationing Board (county or city clerk). Before submitting formal application, however, the tires must be inspected by one of the approved dealers or garages authorized to inspect and report on the condition of the applicant's tires. If the authorized inspector finds that the tire or tires which the applicant desires to replace are unsafe, cannot be repaired, reconditioned, or retreaded, the inspector will so certify on the application form.

The application should then be taken to the local Tire Rationing Board for consideration. If the Board finds the applicant falls within the eligible classification, it may issue a certificate for the purchase of the desired tire within the quota of tires assigned to the Board. The tire must be mounted on the physician's car. Each Board will have a monthly quota assigned of which one quarter is available each week. Excess allotments will carry over from week to week, but not from month to month. As soon as the stated allotment has been used, no more tires will be available until the next week.—Extract from *Instructions for Tire Rationing, O.P.A.*